OFFICIAL PUBLICATION OF THE MEDICAL SOCIETY OF VIRGINIA

VIRGINIA MEDICAL MONTHLY

MARCH, 1959

IN THREATENED AND HABITUAL ABORTION:
"...high-potency progestational agents [such as NORLUTIN] frequently have the power, when administered in adequate dosage, to arrest and suspend myometrial contractions incident to spontaneous abortion."* This is the conclusion of a group of investigators who studied patients with threatened (and in some cases habitual) abortion. The study group was compared with a control group which was treated with bed rest and mild sedation only. In this control group, the salvage rate was 15.5 per cent. In the group receiving NORLUTIN, 19 of 45 pregnancies were continued—a salvage rate of 42.2 per cent

PREGNANCY SALVAGE WITH NORLUTIN

	Control Group (Treated with bed rest and mild sedation)	Study Group (Treated with NORLUTIN)
Total number of pregnancies	297	45
Number of pregnancies salvaged	46	19
Percentage of pregnancies salvaged	15.5%	42.2%

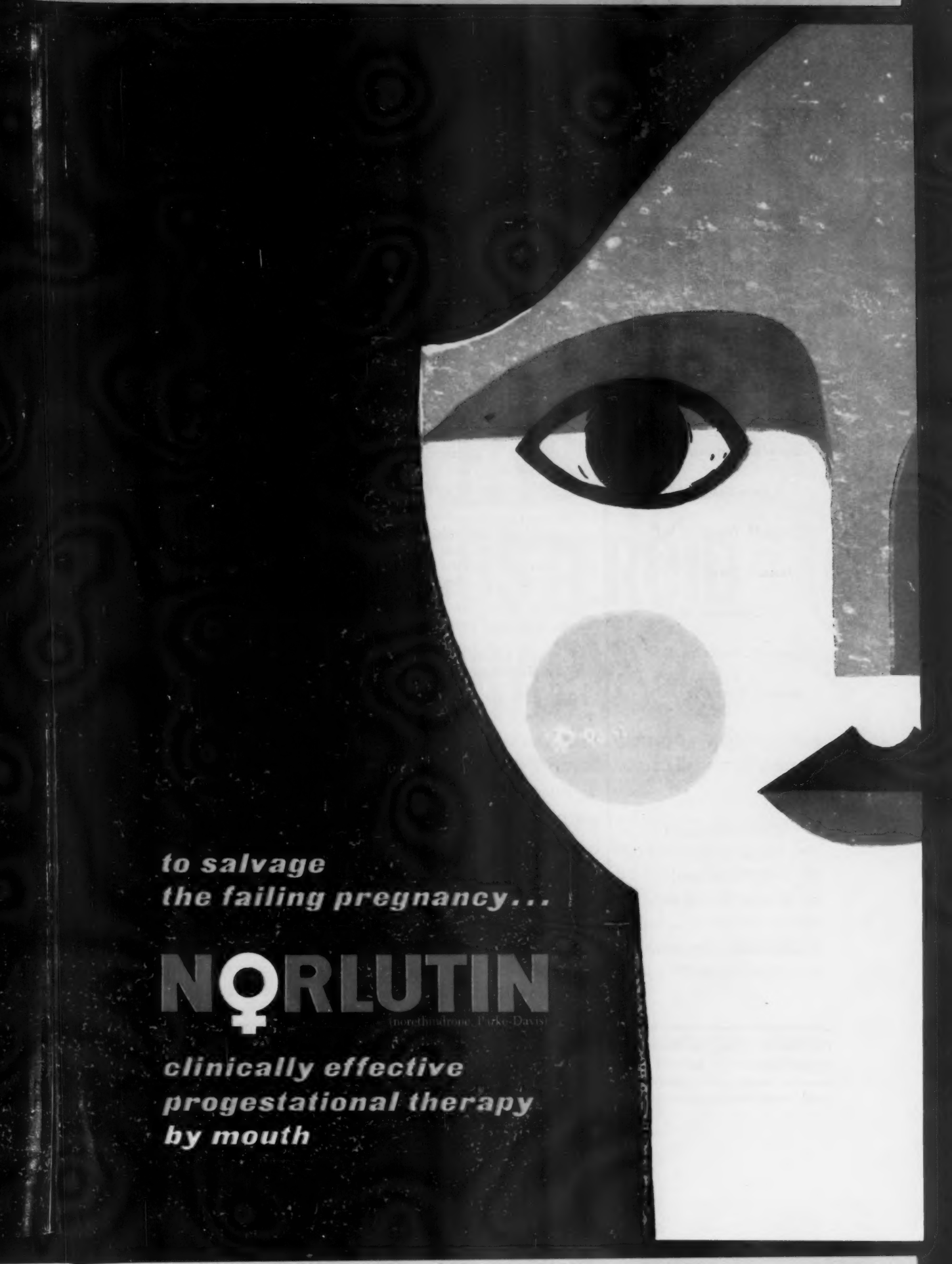
Adapted from Hodgkinson *et al.**

Indications for NORLUTIN: Conditions involving deficiency of progesterone, such as primary and secondary amenorrhea, menstrual irregularity, functional uterine bleeding, endocrine infertility, habitual abortion, threatened abortion, premenstrual tension, and dysmenorrhea.

packaging: 5-mg. scored tablets, bottles of 30.

*Hodgkinson, C. P., Igna, E. J., & Bukeavich, A. P.: *Ann. New York Acad. Sc.* 71:753, 1958.

71555


to salvage
the failing pregnancy...
NORLUTIN
(norethindrone, Parke-Davis)
clinically effective
progestational therapy
by mouth

VIRGINIA MEDICAL MONTHLY

(Founded by Landon B. Edwards, M. D., April 1874)

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DECADRON—the new and most potent of all corticosteroids, **eliminated fluid retention in all but 0.3 percent of 1500 patients†, and induced beneficial diuresis in nearly all cases of pre-existing edema.**

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Therapy with DECADRON has also been distinguished by virtual absence of diabetogenic effects and hypertension, by fewer and milder Cushingoid reactions, and by freedom from any new or "peculiar" side effects. Moreover, DECADRON has helped restore a "natural" sense of well-being.

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SYRUP OF CHLORAL HYDRATE

NEW RALDRATE NOW SOLVES THE PROBLEM OF TASTE RESISTANCE TO CHLORAL-HYDRATE

10 Grains (U.S.P. Dose) of palatable lime flavored chloral-hydrate syrup in each teaspoonful

RAPID SEDATION WITHOUT HANGOVER

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J. and V.

The Story of Kent

How Lorillard research produced a cigarette with less tars and nicotine than any other leading filter brand

A major research foundation, under Lorillard sponsorship, determined that the average puff of cigarette smoke contained over 12 billion semi-solid particles. Further research revealed that inhaled smoke from ordinary cigarettes has a predominant proportion of particles, from 0.1 to 1 micron in diameter, average 0.6 micron.

Ordinary filter fibers are so large that they create spaces through which the small semi-solid smoke particle can easily pass. However, in the superior Kent filter, the fibers are mechanically manipulated in such a manner as to create extremely tortuous passageways for the smoke. This is the "MICRONITE" Filter.

The Kent filter is composed of pure cellulose acetate, which is common to the filters used in all leading brands. However, the physical construction of the Kent filter is the exclusive development of Lorillard research, and is different from and superior to all the rest.

Thus, Lorillard research created a filter of ideal purity, with extraordinary ability to eliminate smoke particles... and at the same time, a cigarette of such fine taste that during the past twelve months more smokers changed to Kent than to any other cigarette in America.

Of all leading filter cigarettes

KENT FILTERS BEST

You get less tars and nicotine in the smoke of Kent than in any other leading filter cigarette in America

If you would like for your own use the booklet, "The Story of Kent," write to:

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200 East 42nd St., N.Y. 17, N.Y.

Now—All cold symptoms can be controlled

Provides Triaminic for more complete and more effective relief from nasal and paranasal congestion because of systemic transport to *all* respiratory membranes—without drawbacks of topical therapy.†

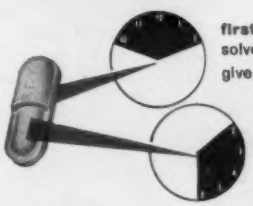
Provides well-tolerated APAP (N-acetyl-p-aminophenol) for prompt and effective analgesic and antipyretic action to make the patient more comfortable.

Provides Dormethan (brand of dextromethorphan HBr) for non-narcotic antitussive action on the cough reflex center in the medulla—as effective as codeine but without codeine's drawbacks.

Provides terpin hydrate, classic expectorant to thin inspissated mucus and help the patient clear the respiratory passages.

†Lhotka, F. M.: Illinois M. J. 112:259 (Dec.) 1957. Fabricant, N. D.: E. E. N. T. Monthly 37:460 (July) 1958. Farmer, D. F.: Clin. Med. 5:1183 (Sept.) 1958.

Special "timed release" design



first—the outer layer dissolves within minutes to give 3 to 4 hours of relief

then—the inner core releases its ingredients to sustain relief for 3 to 4 more hours

also available for those patients who prefer liquid medication: **Tussagesic suspension**

Each TUSSAGESIC tablet provides:

TRIAMINIC®	50 mg.
(phenylpropanolamine HCl	25 mg.
pheniramine maleate	12.5 mg.
pyrilamine maleate	12.5 mg.)
Dormethan (brand of dextromethorphan HBr)	30 mg.
Terpin hydrate	180 mg.
APAP (N-acetyl-p-aminophenol)	325 mg.

Dosage: One tablet in the morning, midafternoon and in the evening, if needed.

Tussagesic® *timed-release tablets*

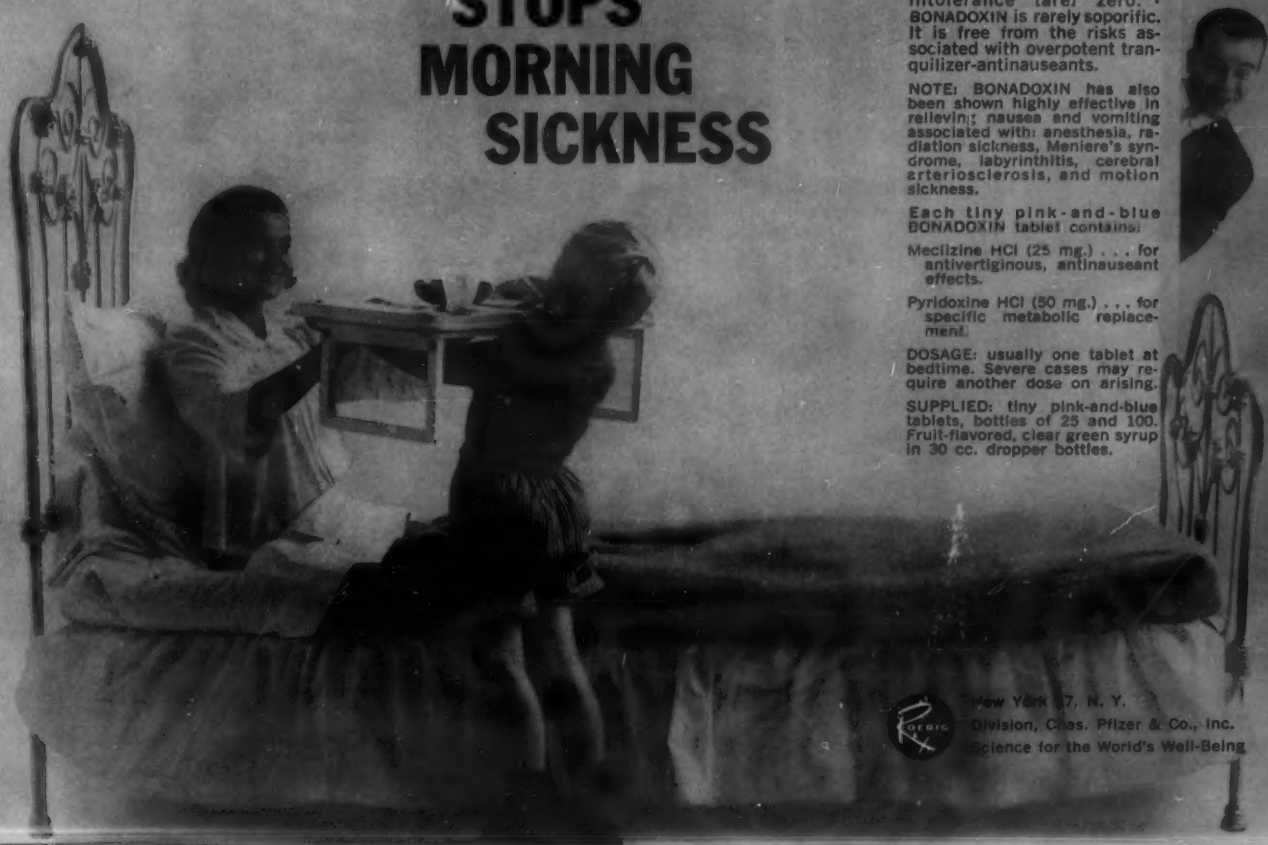
*Contains TRIAMINIC to STOP running noses and open stuffed noses orally

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

BONADOXIN®

(tablets and drops)

STOPS STOPS STOPS MORNING SICKNESS



BONADOXIN Tablets relieve nausea and vomiting of pregnancy in 9 out of 10,[1-7] often within a few hours.

Moreover, a controlled study of 620 cases reported that with BONADOXIN "toxicity and intolerance (are) zero."[1] BONADOXIN is rarely soporific. It is free from the risks associated with overpotent tranquilizer-antinauseants.

NOTE: BONADOXIN has also been shown highly effective in relieving nausea and vomiting associated with: anesthesia, radiation sickness, Meniere's syndrome, labyrinthitis, cerebral arteriosclerosis, and motion sickness.

Each tiny pink-and-blue BONADOXIN tablet contains:

Meclizine HCl (25 mg.) . . . for antivertiginous, antinauseant effects.

Pyridoxine HCl (50 mg.) . . . for specific metabolic replacement.

DOSAGE: usually one tablet at bedtime. Severe cases may require another dose on arising.

SUPPLIED: tiny pink-and-blue tablets, bottles of 25 and 100. Fruit-flavored, clear green syrup in 30 cc. dropper bottles.

Infant colic? BONADOXIN DROPS are antispasmodic...stop colic in 84%,[8-10] without the risk of belladonna and barbiturates.

Each cc. contains:
Meclizine dihydrochloride . . 8.33 mg.
Pyridoxine hydrochloride . . . 16.67 mg.

Dosage:

under 6 months . . . . 0.5 cc.	2 or 3 times daily, on the tongue, in fruit juice or water
6 months to 2 years . . . . 1.5 to 2 cc.	
2 to 6 years . . 3 cc.	
adults and children over 6 . . . . . 1 tsp. (5 cc.)	

References: 1. Goldsmith, J. W.: Minnesota Med. 40:99 (Feb.) 1957. 2. Groskloss, H. H., et al.: Clin. Med. 2:885 (Sept.) 1955. 3. Weinberg, A., and Werner, W. E. F.: Am. Pract. & Digest Treat. 6:580 (April) 1955. 4. Crawley, C. R.: West. J. Surg. 8:463 (Aug.) 1956. 5. Tartikoff, G.: Clin. Med. 3:223 (March) 1955. 6. Dunn, R. D., and Fox, L. P.: Clinical exhibit. 7. Codling, J. W., and Lowden, R. J.: Northwest Med. 57:331 (March) 1958. 8. Dougan, H. T.: Personal communication. 9. Leonard, C. L.: Personal communication. 10. Steinberg, C. L.: Personal communication.

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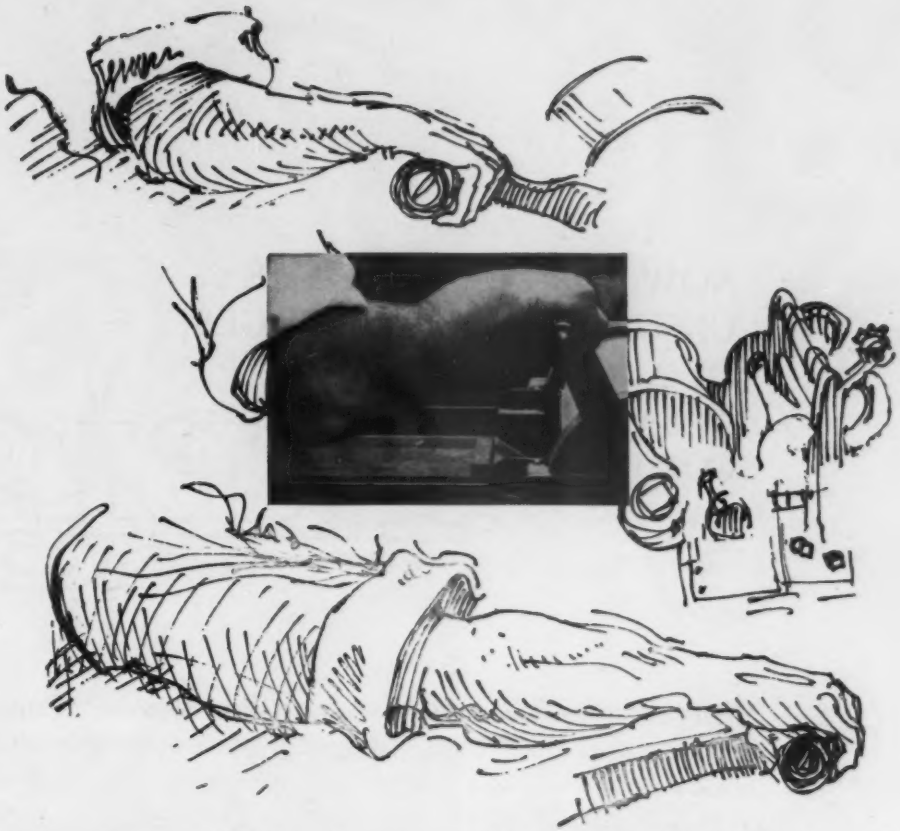
New York 17, N. Y.
Division, Chas. Pfizer & Co., Inc.
Science for the World's Well-Being



To the relief of musculoskeletal pain, new MEDAPRIN* adds restoration of function

Analgesics offer temporary relief of musculoskeletal pain, but they merely *mask* pain rather than getting at its *cause*. New Medaprin, in addition to bringing about prompt subjective improvement, promotes the *restoration of normal function* by suppressing the inflammation that *causes* the pain.

Medaprin, Upjohn's new analgesic-steroid combination, contains aspirin plus Medrol,** the corticosteroid with *the best therapeutic ratio in the steroid field*.† Instead of suffering recurrent discomfort because of the "wearing off" of analgesics, the patient on Medaprin experiences a smooth, *extended* relief and more normal mobility.

Indications: Medaprin is indicated in mild-to-moderate rheumatic and musculoskeletal conditions, including rheumatoid arthritis, deltoid bursitis, low back pain, neuralgia, synovitis, fibromyositis, osteoarthritis, low back sprain, traumatic wrist, sciatica, and "tennis elbow."

Dosage: The recommended dosage is 1 tablet q.i.d. The usual cautions and contraindications of corticotherapy should be observed.

Supplied: In bottles of 100 and 500.

Formula: Each Medaprin tablet contains

- 300 mg. acetylsalicylic acid, for prompt relief of pain
- 1 mg. Medrol, to suppress the causative inflammation
- 200 mg. calcium carbonate, as buffer

*TRADEMARK **TRADEMARK, REG. U. S. PAT. OFF.—METHYLPREDNISOLONE, UPJOHN
†RATIO OF DESIRED EFFECTS TO UNDESIRED EFFECTS

The Upjohn Company, Kalamazoo, Michigan **Upjohn**

NOW—YOU CAN GET THE UNSURPASSED ADVANTAGES OF ARISTOCORT IN SALICYLATE COMBINATION

Aristo

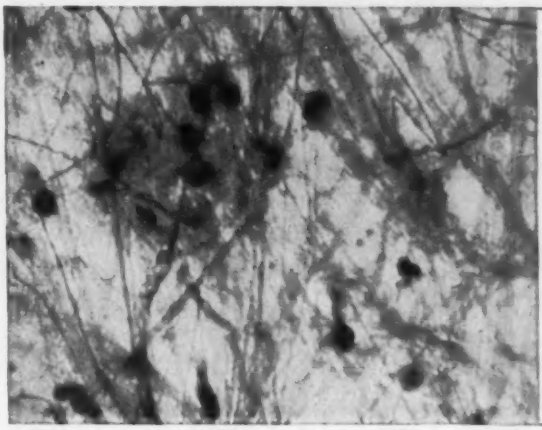
Aristogesic combines the *anti-inflammatory* effects of Aristocort® Triamcinolone with the *analgesic* action of a most potent salicylate. This means that the dosage of each is *substantially lower* than that ordinarily required for each agent alone. With Aristogesic the physician has exceptionally wide latitude in adjusting the dosage to the lowest effective level.

The possibility of gastric distress from either salicylamide or corticosteroid is minimized because of lower dosage required. This is further reduced by the buffer action of aluminum hydroxide. And the ascorbic acid helps meet the increased need for this vitamin in stress conditions. Because of the low dosage, side effects with Aristogesic have been relatively infrequent and minor in nature. However, more serious side effects have traditionally been observed on all corticosteroid therapy. Patients on long-term Aristogesic therapy should, therefore, be observed carefully.

togesic*

Steroid–Analgesic Compound LEDERLE

for relief of *chronic*–but *less severe* pain of rheumatic origin



Indications: Mild cases of rheumatoid arthritis, tenosynovitis, synovitis, bursitis, mild spondylitis, myositis, fibrositis, neuritis and certain muscular strains.

Dosage: Average initial dosage: 2 capsules 3 or 4 times daily. Maintenance dosage to be adjusted according to response.

Each Aristogesic Capsule contains:

ARISTOCORT® Triamcinolone	0.5 mg.
Salicylamide	325 mg.
Aluminum Hydroxide	75 mg.
Ascorbic Acid	20 mg.

Supply: Bottles of 100.

Collagen tissue (x250)

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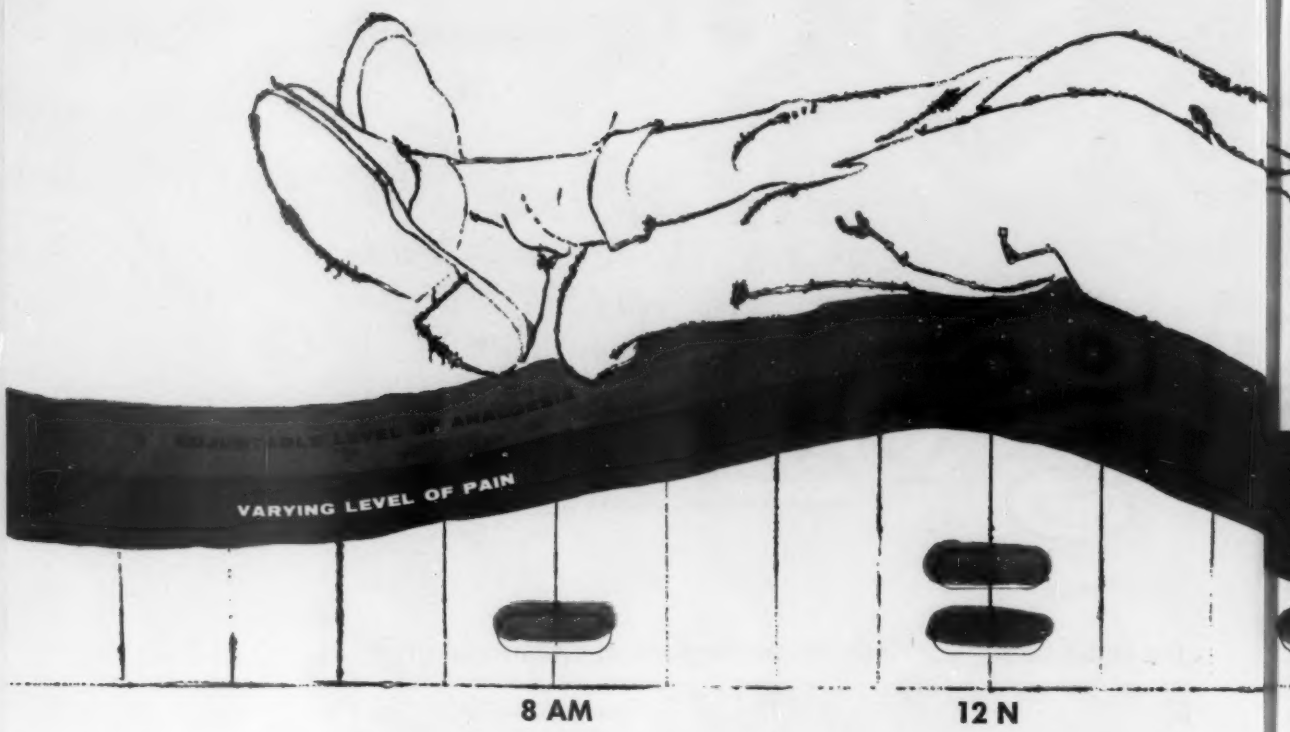

keep all patients* pain-free at all times

- with the proper potency to match pain intensity
- with dosage flexibility to match pain variations

Phenaphen®

or

Phenaphen®-with Codeine

*except those for whom recourse to morphine is inescapable.

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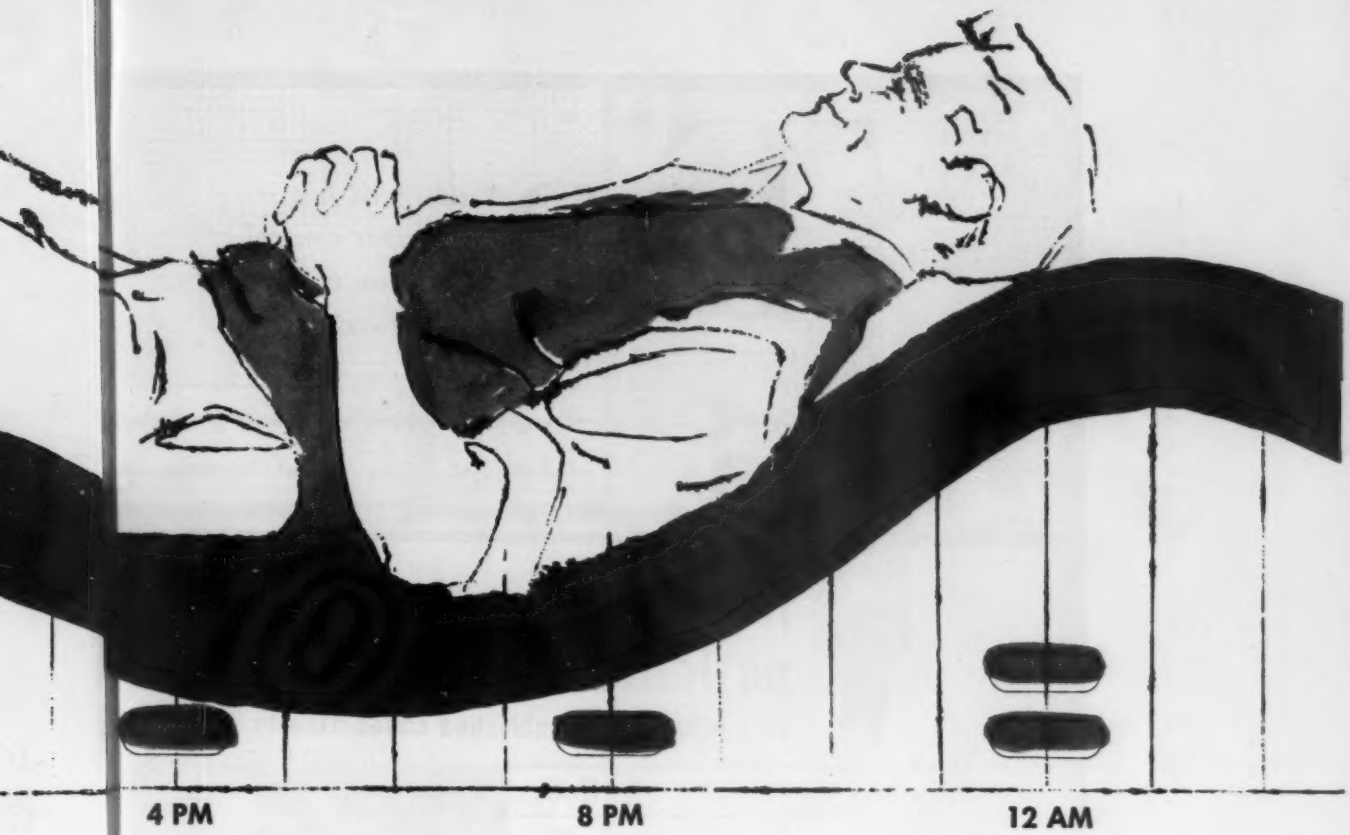


Phenaphen and Phenaphen with Codeine provide a wide range of analgesia, plus complete dosage flexibility, to match varying pain requirements.

Yours to prescribe:

The **right** dose of the **right** potency at the **right** time.

Phenaphen

Basic non-narcotic formula

For mild to moderate pain

Each capsule contains:

Phenacetin (3 gr.) .....194.0 mg.
Acetylsalicylic acid (2½ gr.).....162.0 mg.
Phenobarbital (¼ gr.) ..... 16.2 mg.
Hyoscyamine sulfate.....0.031 mg.

Phenaphen No. 2

Phenaphen with Codeine Phosphate ¼ gr. (16.2 mg.)

For moderate to severe pain

Phenaphen No. 3

Phenaphen with Codeine Phosphate ½ gr. (32.4 mg.)

For severe or stubborn pain

Phenaphen No. 4

Phenaphen with Codeine Phosphate 1 gr. (64.8 mg.)

For stubborn or intense pain—to obviate or postpone use of morphine or addicting synthetic narcotics

DOSAGE: One or two capsules as required.

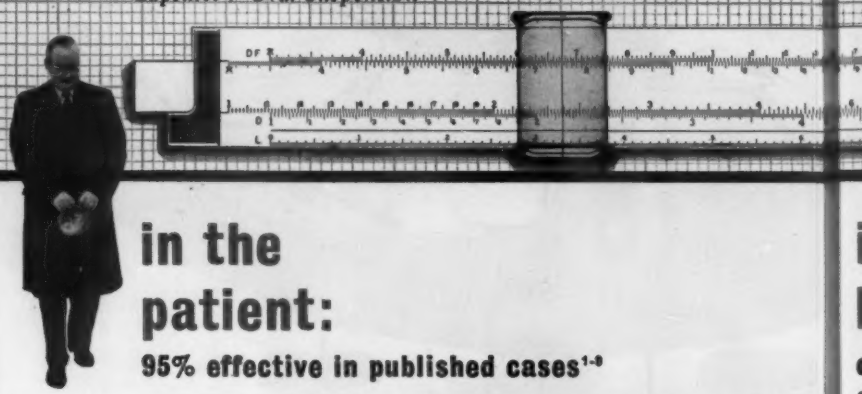
PRONOUNCED TAY-O

Rx Tao*

(triacetyloleandomycin)

Capsules / Oral Suspension

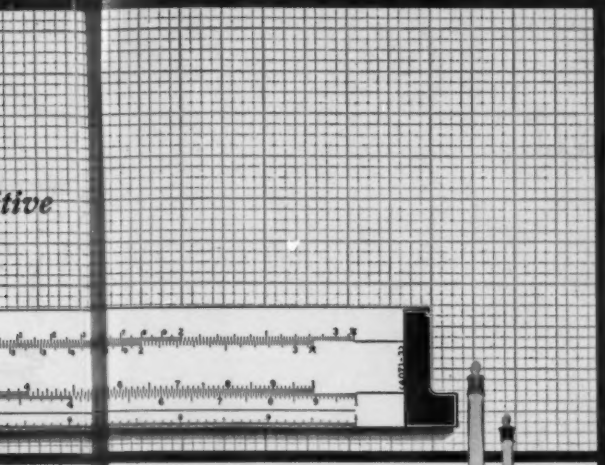
** designed for superior control of common Gram-positive infections*



in the patient:

95% effective in published cases[1-9]

Conditions treated	No. of Patients	Cured	Improved	Failure
ALL INFECTIONS	558	[illegible]	[illegible]	30
Respiratory infections	258	[illegible]	21	19
Pharyngitis and/or tonsillitis	65	[illegible]	5	2
Pneumonia	90	[illegible]	17	7
Infectious asthma	44	[illegible]	–	6
Otitis media	31	[illegible]	2	–
Other respiratory (bronchitis, bronchiolitis, bronchiectasis, pneumonitis, laryngotracheitis, strep throat)	28	[illegible]	7	4
Skin and soft tissue infections	230	[illegible]	38	1
Infected wounds, incisions and lacerations	41	[illegible]	8	–
Abscesses	51	[illegible]	8	–
Furunculosis	58	[illegible]	6	1
Acne, pustular	43	[illegible]	15	–
Pyoderma	19	[illegible]	–	–
Other skin and soft tissue (infected burns, cellulitis, impetigo, ulcers, others)	18	[illegible]	1	–
Genitourinary infections	28	[illegible]	3	6
Acute pyelitis and cystitis	10	[illegible]	2	–
Urethritis with gonorrhea or cystitis	8	[illegible]	–	–
Pyelonephritis	4	[illegible]	–	3
Salpingitis	5	[illegible]	1	3
Pelvic inflammation with endometriosis	1	[illegible]	–	–
Miscellaneous (adenitis, enteritis, enterocolitis, subacute bacterial endocarditis, fever, hematoma, staphylococcus carriers, osteomyelitis, tenosynovitis, septic arthritis, acute bursitis, periarthritis)	42	[illegible]	8	4



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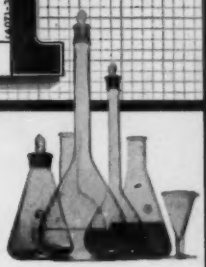
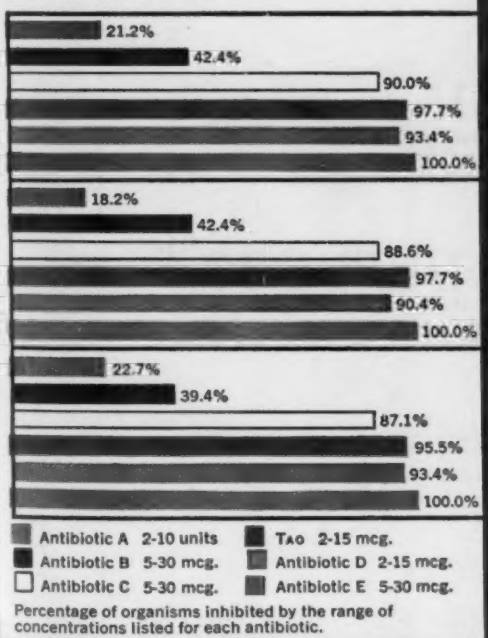


over 90% effective against resistant staph

COMPARATIVE TESTS BY THREE METHODS (DISC, TUBE DILUTION, CYLINDER PLATE) ON 130 STAPHYLOCOCCI[9]



Percentage of organisms inhibited by the range of concentrations listed for each antibiotic.

Other Tao advantages:

Rapidly absorbed—stable in gastric acid,[9] TAO needs no retarding protective coating

Low in toxicity—freedom from side effects in 96% of patients treated; cessation of therapy is rarely required

Highly palatable—"practically tasteless"[7] active ingredient in a pleasant cherry-flavored medium.

Dosage and Administration: Dosage varies according to the severity of the infection. **For adults,** the average dose is 250 mg. q.i.d.; to 500 mg. q.i.d. in more severe infections. For children 2 months to 8 years, a daily dose of approximately 30 mg./Kg. body weight in divided doses has been found effective. Since TAO is therapeutically stable in gastric acid, it may be administered without regard to meals.

Supplied: TAO Capsules—250 mg. and 125 mg., bottles of 60. TAO for Oral Suspension—1.5 Gm., 125 mg. per teaspoonful (5 cc.) when reconstituted; unusually palatable cherry flavor; 2 oz. bottle.

References: 1. Koch, R., and Asay, L. D.: J. Pediat., in press. 2. Leming, B. H., Jr., et al.: Paper presented at the Symposium on Antibiotics, Washington, D. C., Oct. 15-17, 1958. 3. Meilman, E., et al.: Paper presented at the Symposium on Antibiotics, Washington, D. C., Oct. 15-17, 1958. 4. Olansky, S., and McCormick, G. E., Jr.: Paper presented at the Symposium on Antibiotics, Washington, D. C., Oct. 15-17, 1958. 5. Shubin, H., et al.: Antibiotics Annual 1957-1958. New York, N. Y., Medical Encyclopedia, Inc., 1958, p. 679. 6. Isenberg, H., and Karelitz, S.: Paper presented at the Symposium on Antibiotics, Washington, D. C., Oct. 15-17, 1958. 7. Wennersten, J. R.: Antibiotic Med. & Clin. Therapy 5:527 (Aug.) 1958. 8. Kaplan, M. A., and Goldin, M.: Paper presented at the Symposium on Antibiotics, Washington, D. C., Oct. 15-17, 1958. 9. Truant, J. P.: Paper presented at the Symposium on Antibiotics, Washington, D. C., Oct. 15-17, 1958.

TAO dosage forms—for specific clinical situations

TAO Pediatric Drops

For children—flavorful, easy to administer.

Supplied: When reconstituted, 100 mg. per cc. Special calibrated droppers—5 drops (approx. 25 mg.) and 10 drops (approx. 50 mg.). 10 cc. bottle.

TAO-AC (TAO analgesic, antihistaminic compound)

To eradicate pain and physical discomfort in respiratory disorders.

Supplied: In bottles of 36 capsules.

TAOSID® (TAO with triple sulfas)

For dual control of Gram-positive and Gram-negative infections.

Supplied: Tablets, bottles of 60. Oral Suspension, bottles of 60 cc.

Intramuscular or Intravenous

For direct action—in clinical emergencies.

Supplied: In 10 cc. vials.

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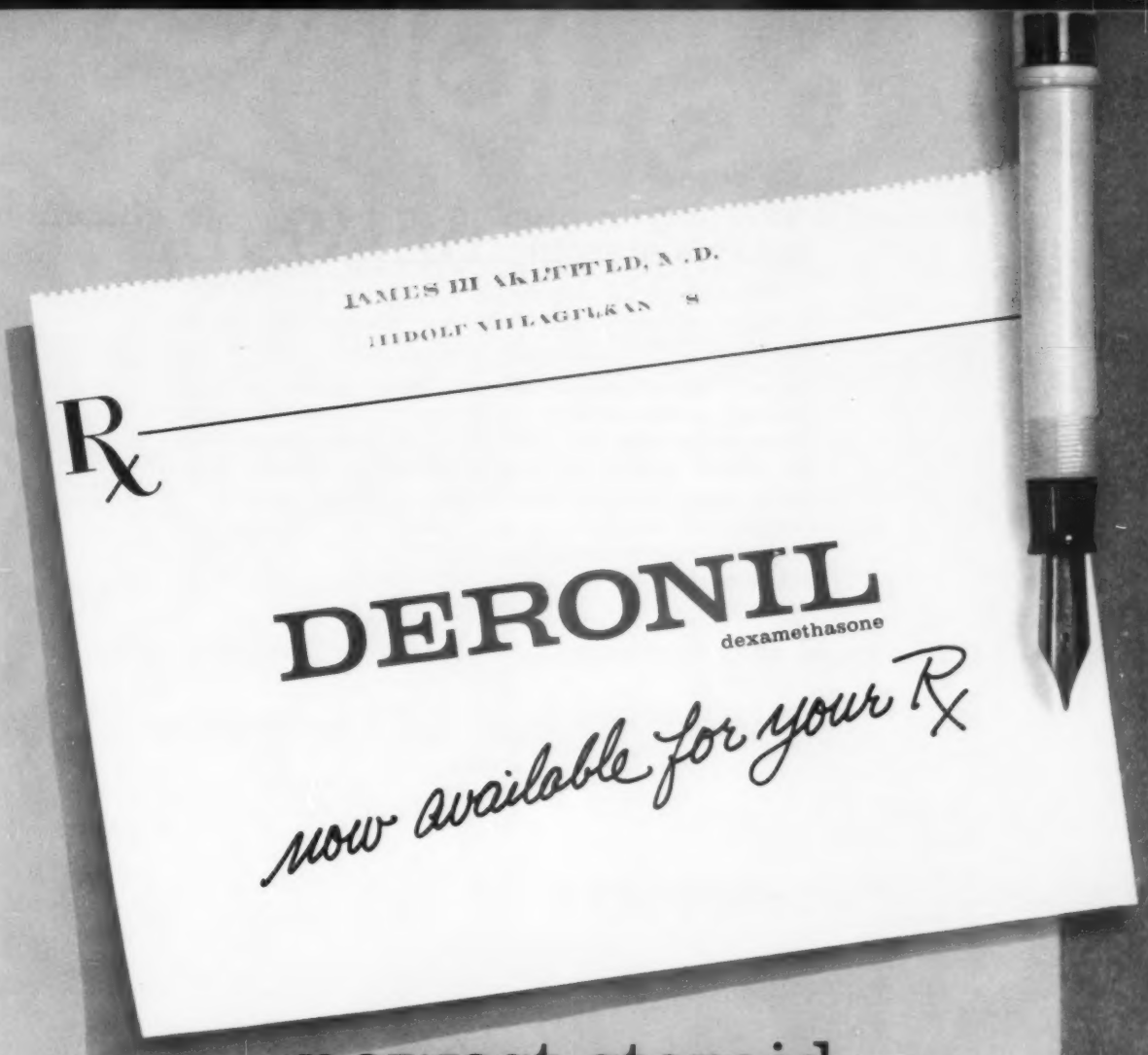
Science for the World's Well-Being

"It is concluded that the addition of buffering agents to acetylsalicylic acid in the concentrations used serves no clinically detectable useful purpose."[1]

[1]Sadove, Max S. and Schwartz, Lester: An Evaluation of Buffered Versus Nonbuffered Acetylsalicylic Acid, Postgraduate Medicine; 24:183, August, 1958.
Nonbuffered Material Used—Bayer® Aspirin.



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TYPICAL RESULTS WITH DEXAMETHASONE THERAPY IN ARTHRITIS

Investigator or Study	No. of patients	Improvement		
		Very marked or marked	Moderate	Slight or inadequate
Boland, E. W., and Headley, N. E.[1]	11	4	5	2
Bunim, J. J., and others[5]	18	5	7	6
Series A[3]	15	4	9	2
Series B[3]	6	6	—	—
Series C[3]	3	3	—	—

DERONIL IN BRONCHIAL ASTHMA AND SEVERE RESPIRATORY ALLERGIES

Investigator or Study	No. of patients	Results		
		Excellent	Fair to good	Poor
Series D[3]	24	10	9	5
Series E[3]	12	8	3	1
Series F[3]	20	13	4	3

clinically preproved in steroid-responsive diseases

IMPROVEMENT WITH DERONIL IN A WIDE VARIETY OF ALLERGIC AND INFLAMMATORY SKIN DISEASES[5]

Disease	No. of patients	Improved	Same	Worse
Seborrheic psoriasis	1	1		
Neurodermatitis	5	5		
Allergic dermatitis	5	5		
Psoriasis	5	2	1	2
Lupus erythematosus, chronic discoid	1		1	
Atopic dermatitis	3	3		
Acne rosacea	1		1	
Nummular eczema	2	2		
"id" reactions	2	2		
Contact dermatitis	2	2		
Pityriasis rosea, severe	1	1		
Urticaria, chronic	1	1		
Totals	29	24	3	2

THERAPY WITH DERONIL IN A VARIETY OF INFLAMMATORY EYE DISEASES[5]

Patient, age and sex	Diagnosis	Symptoms	Results with DERONIL	Side effects
A.B., 46, M.	Postoperative uveitis		Improved; treatment being continued	None reported*
A.E., 53, M.	Choroiditis	Severe choroidal involvement	Excellent; marked improvement	None*
B.F., 60, F.	Acute choroiditis	Marked visual loss and choroidal effect	Marked improvement; therapy being continued	None*
B.K., 29, F.	Chronic uveitis	Generalized involvement	No change despite dosage increase	None*
H.K., 28, M.	Acute iritis	Blurred vision	Excellent; recovered	None*
A.P., 52, M.	Uveitis and perivasculitis	Vision loss to 20/80	Marked improvement; vision 20/30; treatment continued	None*
A.S., 34, M.	Uveitis		Excellent; patient recovered	None*

*Short-term therapy

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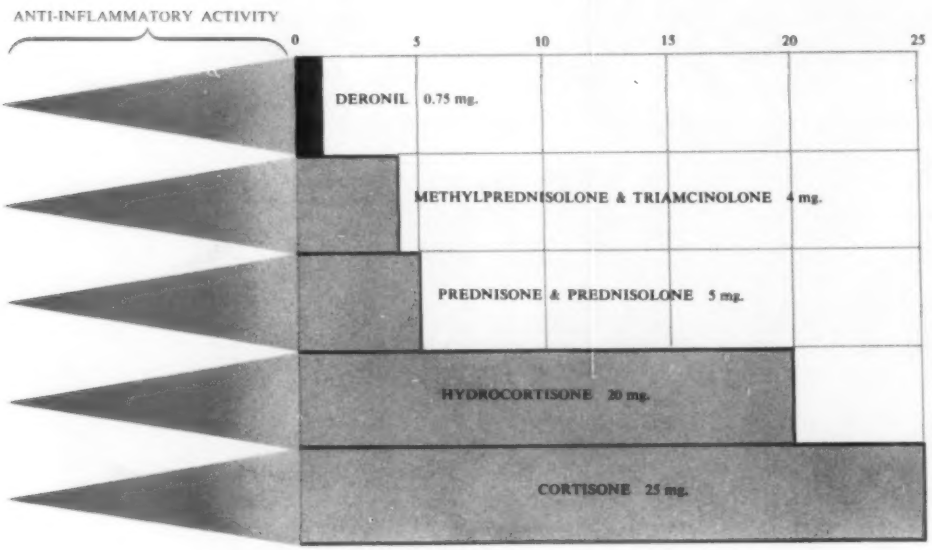
DERONIL, new 9-alpha-fluoro-16-alpha-methyl derivative of prednisolone, has at least six times the anti-inflammatory activity, milligram for milligram, of other steroids in current use. Effective dosages are the lowest in steroid therapy. And the price of DERONIL to the patient is no higher than those prevailing for other steroids.

STEROID DOSAGE EQUIVALENTS OF DERONIL



Comparative dosages of corticosteroids for equivalent anti-inflammatory activity

Dosages pre-established in the vast majority of steroid-responsive diseases

The comprehensive clinical studies conducted with DERONIL before introduction mean that initial and maintenance dosages are already established for the physician in practically all steroid-responsive diseases including rheumatoid arthritis, acute rheumatic fever, bursitis, bronchial asthma, pulmonary emphysema and fibrosis, intractable hay fever (pollenosis), disseminated lupus erythematosus, allergic and inflammatory dermatoses and eye diseases and the adrenogenital syndrome. For complete information on dosage, precautions and contraindications, consult Schering literature.

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1. Landes, R. P. and Peters, M.: Postgrad. Med. 23:648, June 1958.

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Phenobarbital	gr. ¼
Acetophenetidin	gr. 2½
Aspirin (Acetylsalicylic Acid)	gr. 3½

...from pain of muscle and joint origin, simple headache, neuralgia, and the symptoms of the common cold.

'TABLOID'

'EMPIRIN' COMPOUND®

Acetophenetidin	gr. 2½
Aspirin (Acetylsalicylic Acid)	gr. 3½
Caffeine	gr. ½

...from mild pain complicated by tension and restlessness.

'EMPIRAL'®

Phenobarbital	gr. ¼
Acetophenetidin	gr. 2½
Aspirin (Acetylsalicylic Acid)	gr. 3½

*Subject to Federal Narcotic Regulations

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deserve

GEVRAL® capsules—14 VITAMINS AND 11 MINERALS

Vitamin-Mineral Supplement Lederle

For Complete Formula see PDR (Physicians' Desk Reference), page 689

LEDERLE LABORATORIES, a Division of AMERICAN CYANAMID COMPANY, Pearl River, New York

more than tetracycline alone

MYSTECLIN-V CONTAINS TETRACYCLINE PHOSPHATE COMPLEX FOR A DIRECT ATTACK ON THE PRIMARY INFECTION

Mysteclin-V strikes directly at all tetracycline sensitive organisms—most pathogenic bacteria, certain large viruses, Endamoeba histolytica. It provides all benefits of tetracycline in the effective phosphate complex form.[1] Patient response is rapid because initial high peak blood serum levels may be maintained easily at the antibacterial attack level until the infection is conquered.

MYSTECLIN-V CONTAINS MYCOSTATIN FOR A SPECIFIC DEFENSE AGAINST SECONDARY MONILIAL SUPERINFECTION

Mysteclin-V protects patients against antibiotic induced intestinal moniliasis and its complications, including vaginal and anogenital moniliasis. This protection is provided by Mycostatin, the antifungal antibiotic, with specific action against Candida (Monilia) albicans.[2]

BOTH ARE OFTEN NEEDED WHEN BACTERIAL INFECTION OCCURS

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SQUIBB TETRACYCLINE PHOSPHATE COMPLEX (SUMYCIN) AND NYSTATIN (MYCOSTATIN)

Capsules (250 mg./250,000 u), bottles of 16 and 100.
Half-strength Capsules (125 mg./125,000 u), bottles of 16 and 100.
Suspension (125 mg./125,000 u per 5 cc.), 2 oz. bottles.
Pediatric Drops (100 mg./100,000 u per cc.), 10 cc. dropper bottles.

References: 1. Crunk, G. A.; Naumann, D. E., and Casson, K.: Antibiotics Annual 1957-1958, New York, Medical Encyclopedia Inc. 1958, p. 397 • 2. Newcomer, V. D.; Wright, E. T., and Sternberg, T. H.: Antibiotics Annual 1954-1955, New York, Medical Encyclopedia Inc., 1955, p. 686.

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Squibb Quality—the Priceless Ingredient

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in skin disorders

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DEXAMETHASONE

treats more patients more effectively
a new order of magnitude in corticosteroid effectiveness
a new order of magnitude in margin of safety

Striking clinical results with DECADRON are reported† in 92 percent of 319 patients with dermatological disorders, including cases previously unresponsive or resistant to corticosteroids. There were no major complications, and even minor side effects occurred in less than eight percent of patients.

Moreover, in many cases reactions induced by previous steroid therapy, such as edema, Cushingoid appearance, headache, vertigo, muscular weakness, depression, hirsutism, and glycosuria, **disappeared during therapy with DECADRON.**

†Analysis of clinical reports.

Dosage: One 0.75 mg. tablet of DECADRON will usually replace one 4 mg. tablet of methylprednisolone or triamcinolone, one 5 mg. tablet of prednisone or prednisolone, one 20 mg. tablet of hydrocortisone, or one 25 mg. tablet of cortisone.

Supplied: As 0.75 mg. and 0.5 mg. scored, pentagon-shaped tablets in bottles of 100 and 1000.

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With your HELP, DOCTOR, private enterprise can meet the health care insurance needs of our SENIOR CITIZENS...

We're trying to give our senior citizens (65 and over) a break. While their ability to pay may be limited and their insurability doubtful, their need for health care insurance is great. Don't you agree?

Who is to furnish such insurance? . . . The Social(ist) Security Schemers (as a big step toward Compulsory Health Insurance with Socialized Medicine as the other side of their coin) are asking for the chance. They claim private enterprise can't get the job done.

We are now offering applicants, 65 and older, a 125-day hospitalization policy (we don't think a short-stay coverage meets the older folks' needs), with a modest $200 maximum surgical fee schedule, at a price that should fit their budgets . . . $10.55 monthly for an aged couple . . . $6.70 for an individual.

We will be liberal in accepting risks, realizing most older applicants have acquired chronic impairments, *but* if we let down the bars to insure the *pending claims*, or the conditions almost *certain* to require *hospitalization* in *new risks* that have *not* been paying premiums right along, our hopes to do the job are doomed to failure.

Here's how we need your help

We'll ask, and we'll get, information about pr[illegible]xisting illness and impairments, from each applicant. We'll get the name of his family doctor and a written authorization for that doctor to furnish us information as requested.

We'll consult *you*—by phone, where possible, so as to save you trouble—to get *your advice* as to whether, *in your opinion*, we can ignore the impairment as not particularly apt to require hospitalization. You may tell us, for example, "Sure, it's there, but if anything could have been done about it in a hospital, it would have been done. Ignore it; give them insurance."

Or you may say, "It wouldn't be fair to ask you to insure that condition. It is probably a pending claim. My medication and treatment isn't taking hold and I'm about ready to get them admitted for some studies. We may have to operate. Just don't tell them I said so."

Of course, your comments will be held in confidence by our underwriters and medical department. We won't let anyone drop other insurance either.

Will you recommend bad risks to help them get insured?

If you do . . . we are at your mercy . . . our plan would fail.

With your cooperation, however, we think *most* of our senior citizens can be insured, successfully. Please help us try. Thanks for reading this.

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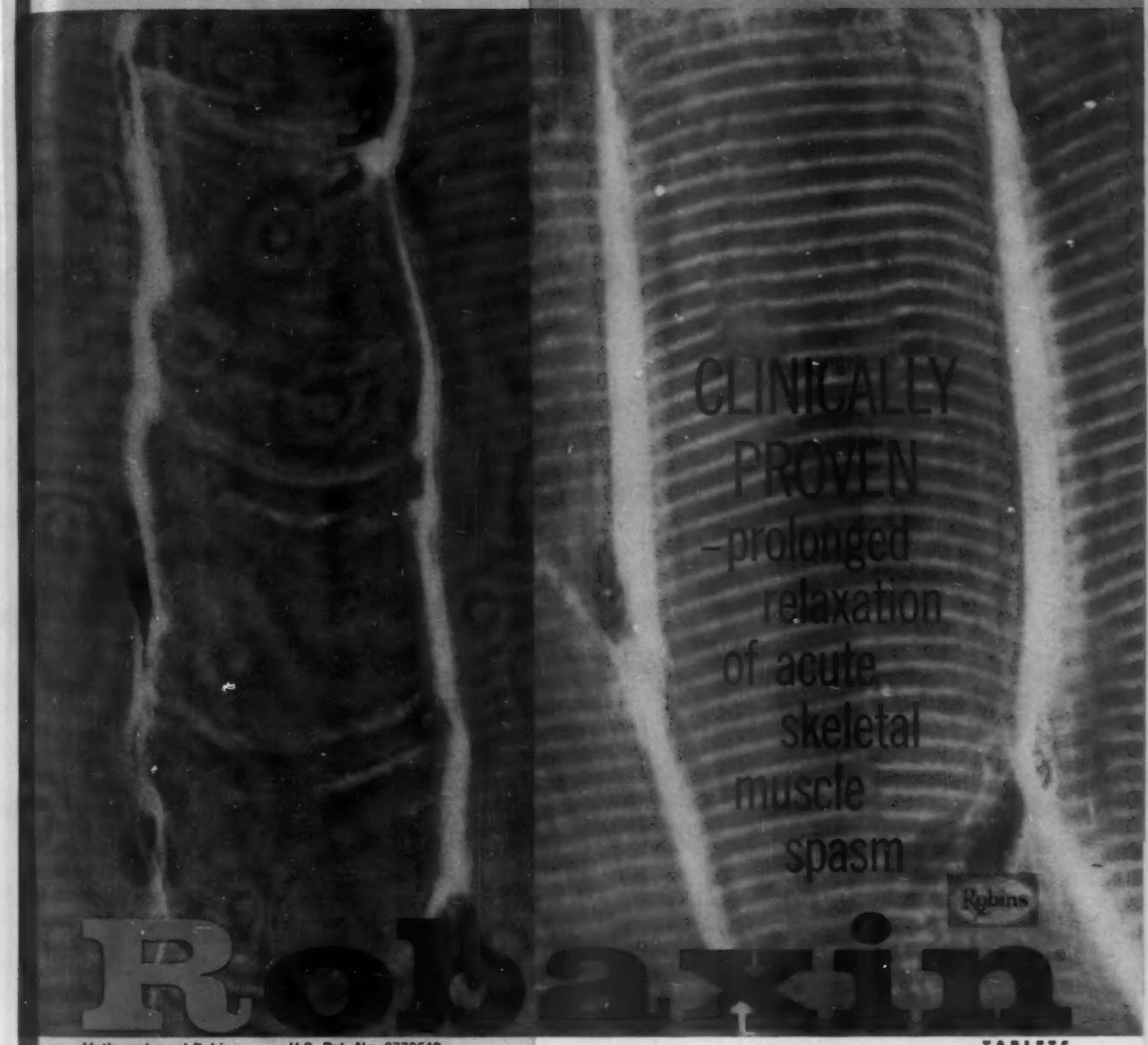
Fiber of skeletal muscle in spasm

Fiber of skeletal muscle relaxed *(photomicrographs)*



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Summary of six published clinical studies:

ROBAXIN BENEFICIAL IN 92.4% OF SKELETAL MUSCLE SPASM CASES

	NO. PATIENTS	RESPONSE			
		"marked"	moderate	slight	none
Carpenter[1]	33	26	6	1	—
		"pronounced"			
Forsyth[2]	58	37	20	—	1
		"good"			
Lewis[3]	38	25	6	—	7
O'Doherty & Shields[4]	17	"excellent" 14	2	1	0
		"significant"			
Park[5]	30	27	—	2	1
		"gratifying"			
Plumb[6]	60	55	—	—	5
TOTALS	236	184 (78.0%)	34 (14.4%)	4	14

- **Highly potent—and long acting.**[1,2,3]
- **Relatively free of adverse side effects.**[1,2,3,5,6]
- **In ordinary dosage, does not reduce muscle strength or reflex activity.**[1]

REFERENCES: 1. Carpenter, E. B.: Southern M. J. 51:627, 1958. 2. Forsyth, H. F.: J.A.M.A. 167:163, 1958. 3. Lewis, W. B.: California Med. 90:26, 1959. 4. O'Doherty, D. S., and Shields, C. D.: J.A.M.A. 167:160, 1958. 5. Park, H. W.: J.A.M.A. 167:168, 1958. 6. Plumb, C. S.: Journal-Lancet 78:531, 1958.

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THERAPY for the menopause syndrome should relieve not only the psychic instability attendant the condition, but the vasomotor instability of estrogen decline as well. Though they would have a hard time explaining it in such medical terms, this is the reason women like "Premarin."

The patient isn't alone in her devotion to this natural estrogen. Doctors, husbands, and family all like what it does for the patient, the wife, and the homemaker.

When, because of the menopause, the psyche needs nursing—"Premarin" nurses. When hot flushes need suppressing, "Premarin" suppresses. In short, when you want to treat the whole menopause, (and how else is it to be treated?), let your choice be "Premarin," a complete natural estrogen complex.

"Premarin," conjugated estrogens (equine), is available as tablets and liquid, and also in combination with meprobamate or methyltestosterone.

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A few suggestions on how to give your patient a diet he can "stick to"—

—and a glass of beer, at your discretion, for a morale-booster

The Low Calorie Diet

A diet that calls for lamb chops when they aren't on the restaurant menu is an invitation to "slip off." But a diet outline that lets your patient fill in the details provides incentive to stick to his diet.

He must remember that a candy bar equals a hamburger in calories only. An alternative must be equivalent in nutrition, too.

Fresh fruits or vegetables such as celery and radishes make good low-calorie nibbles. Spices and herbs, lemon and vinegar add zest with few or no calories.

Have your patient keep a calorie count. Then with a glass of beer* to brighten meals, he is more likely to follow a balanced diet later.

*104 Calories/8 oz. glass (Average of American Beers)

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Beer—America's Beverage of Moderation

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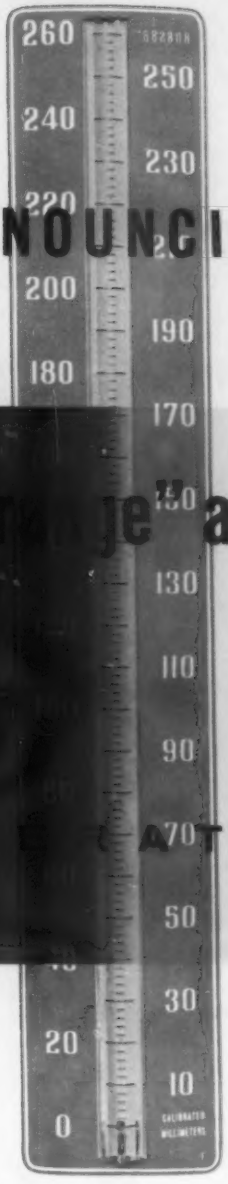

ANNOUNCING

the first wide range antihypertensive

MILD MODERATE SEVERE

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DIURIL® WITH RESERPINE

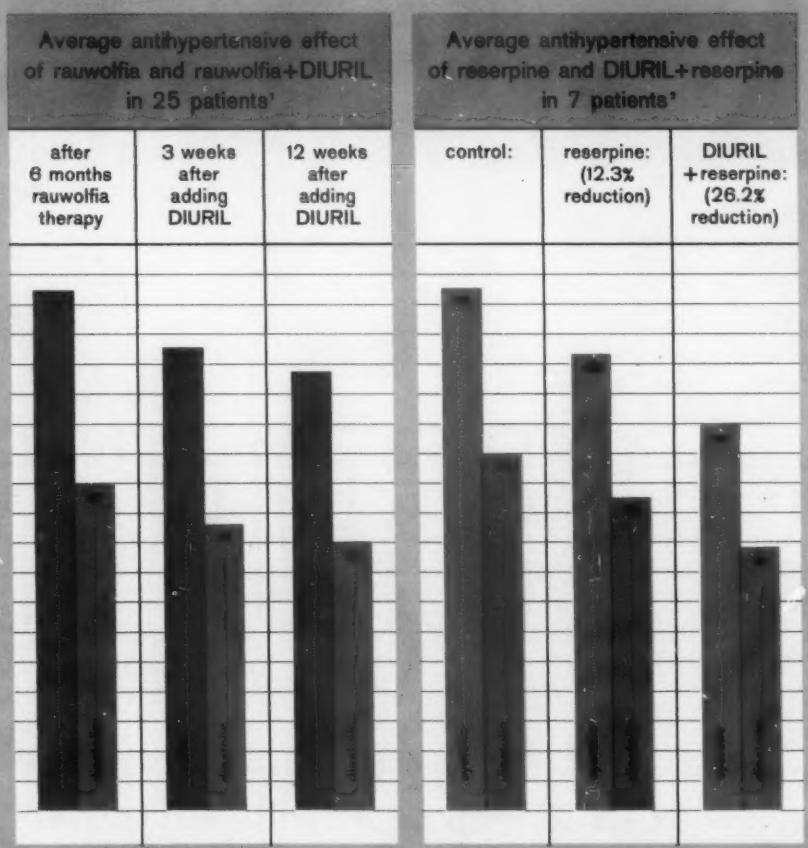
more hypertensives can be better controlled
with **DIUPRES** than with any other agent
. . . with greater simplicity and convenience

a logical alliance of two antihypertensives
you know and trust provides

increased effectiveness, decreased side effects

potentiated effect

DIUPRES produces an effect greater than either DIURIL or reserpine alone. It is effective in many patients who respond inadequately or not at all to either DIURIL or reserpine.


Average antihypertensive effect of rauwolfia and rauwolfia+DIURIL in 25 patients¹
after 6 months rauwolfia therapy
3 weeks after adding DIURIL
12 weeks after adding DIURIL
Average antihypertensive effect of reserpine and DIURIL+reserpine in 7 patients¹
control:
reserpine: (12.3% reduction)
DIURIL +reserpine: (26.2% reduction)

DIUPRES

DIURIL® WITH RESERPINE

effective therapy for most patients

DIUPRES by itself usually provides effective therapy for a majority of patients with mild or moderate hypertension, and even for many patients with severe hypertension. Many patients now treated with other agents which frequently cause distressing side effects can be adequately managed with well tolerated DIUPRES.

provides basic therapy

Should other drugs need to be added to DIUPRES, they can be given in much lower than usual dosage so that their side effects are often strikingly reduced.

rapid onset of effect

The antihypertensive action of DIUPRES is rapidly evident. (Considerable time may elapse before the antihypertensive effect of reserpine alone is observed.)

fewer and less severe side effects

DIUPRES may be expected to cause fewer and less severe side effects than are encountered with other antihypertensive therapy. (Since DIURIL and reserpine potentiate each other, the required dosage of each is usually less when given together as DIUPRES than when given alone. Such reduction in dosage makes side effects less likely to occur.)

often obviates weight gain

DIUPRES minimizes the problem of weight gain seen with reserpine (reserpine alone has been reported to produce weight gain in 50 per cent of patients).[1,4]

virtually eliminates fluid retention

DIUPRES is not likely to cause either clinical or subclinical retention of sodium and water. (Hypotensive drugs, particularly rauwolfia[5] and hydralazine,[6] may cause fluid retention. Even when such retention is subclinical, their antihypertensive effectiveness is diminished.[6])

diet more palatable

With DIUPRES, there is less need for rigid restriction of dietary salt, which patients find so burdensome.

> *"It may well be that the drug* [DIURIL] *produces the benefits of a markedly restricted low sodium diet but without its hardships."*[3]

subjective and objective improvement

DIUPRES allays anxiety and tension, thus reducing the emotional component of hypertension. Organic changes of hypertension may be arrested and reversed. Headache, dizziness, palpitations and tachycardia are usually promptly relieved by DIUPRES. When the *anginal syndrome* accompanies hypertension, the administration of DIUPRES may also cause diminution or even disappearance of this syndrome concurrent with control of the hypertension.

convenient, controlled dosage

Instead of two separate prescriptions, you write one prescription . . . the patient takes one tablet, rather than two different tablets . . . and the dosage schedule is easier for the patient to remember and follow.

> *"patients have fewer lapses and make fewer mistakes in dosage, the simpler the regimen can be made. Therefore I do not hesitate to use more than one medicament combined in one tablet, provided this gives approximately the correct dosage of each."*[6]

economical

DIUPRES will cost the patient less than if he were given two separate prescriptions for its components.

Indications:
DIUPRES is indicated in hypertension of all degrees of severity. It can be used in the following ways:

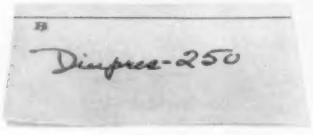
- as total therapy
- as primary therapy, adding other drugs if necessary
- as replacement or adjunctive therapy in patients now treated with other agents

Precautions:
The precautions normally observed with DIURIL or reserpine apply to DIUPRES. Additional information on DIUPRES is available to physicians on request.

Recommended dosage range:
DIUPRES-500—one tablet one to three times a day.
DIUPRES-250—one tablet one to four times a day.
If necessary, other agents may be added.
If the patient is receiving ganglion blocking agents or hydralazine, their dosage should be cut by 50 per cent when DIUPRES is added.

DIUPRES-500

500 mg. DIURIL (chlorothiazide), 0.125 mg. reserpine.
Bottles of 100, 1000.



DIUPRES-250

250 mg. DIURIL (chlorothiazide), 0.125 mg. reserpine.
Bottles of 100, 1000.

the first "wide range" antihypertensive

DIUPRES

DIURIL® WITH RESERPINE

1. Rochelle, J. B., III, Bullock, A. C., and Ford, R. V.: Potentiation of antihypertensive therapy by use of chlorothiazide, *J.A.M.A.* 168:410, Sept. 27, 1958. 2. Freis, E. D., Wanko, A., Wilson, I. M., and Parrish, A. E.: Treatment of essential hypertension with chlorothiazide (Diuril), *J.A.M.A.* 166:137, Jan. 11, 1958. 3. Freis, E. D.: Treatment of hypertension. (Presented at the Annual Meeting of Southern Medical Association, Nov. 13, 1957.) 4. Moyer, J. H., Dennis, E., and Ford, R.: Drug therapy (Rauwolfia) of hypertension, *A.M.A. Arch. Int. Med.* 96:530, Oct. 1955. 5. Perera, G. A.: Edema and congestive failure related to administration of rauwolfia serpentina, *J.A.M.A.* 159:439, Oct. 1, 1955. 6. Wilkins, R. W.: Precautions in use of antihypertensive drugs, including chlorothiazide, *J.A.M.A.* 167:801, June 14, 1958.

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A workhorse "mycin" for common infections

respiratory infections

prompt, high blood levels

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With well-tolerated CYCLAMYCIN, you will find it possible to control many common infections rapidly and to do so with remarkable freedom from untoward reactions. CYCLAMYCIN is indicated in numerous bacterial invasions of the respiratory system—lobar pneumonia, bronchopneumonia, tracheitis, bronchitis, and other acute infections. It has been proved effective against a wide range of organisms, such as pneumococci, H. influenzae, streptococci, and many strains of staphylococci, including some resistant to other "mycins." Supplied as Capsules, 125 and 250 mg., vials of 36; Oral Suspension, 125 mg. per 5-cc. teaspoonful, bottles of 2 fl. oz.

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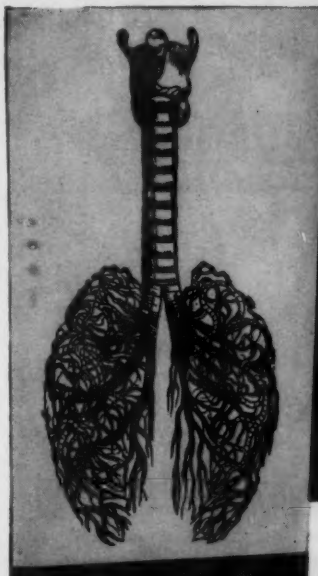

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SULTUSSIN simultaneously affords maximum relief from sneezing, stuffed or runny nose, cough, wheezing, malaise, slight fever, and other distressing symptoms of the severe common cold, coughs, influenza, etc.

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antiallergic • bronchodilator • antispasmodic

In new raspberry flavored tablets and pleasant tasting liquid form.

Supplied:
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Tablets, bottles of 50 and 100.

	Each tablet provides:	Each teaspoonful (5 cc.) provides:
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Sulfamerazine	0.083 Gm.	0.166 Gm.
Sulfamethazine	0.083 Gm.	0.166 Gm.
Pyrilamine Maleate	3.125 mg.	6.25 mg.
Phenyltoloxamine Dihydrogen Citrate	3.125 mg.	6.25 mg.
Glyceryl Guaiacolate	25.0 mg.	50.0 mg.
Ephedrine Sulfate	2.5 mg.	5.0 mg.

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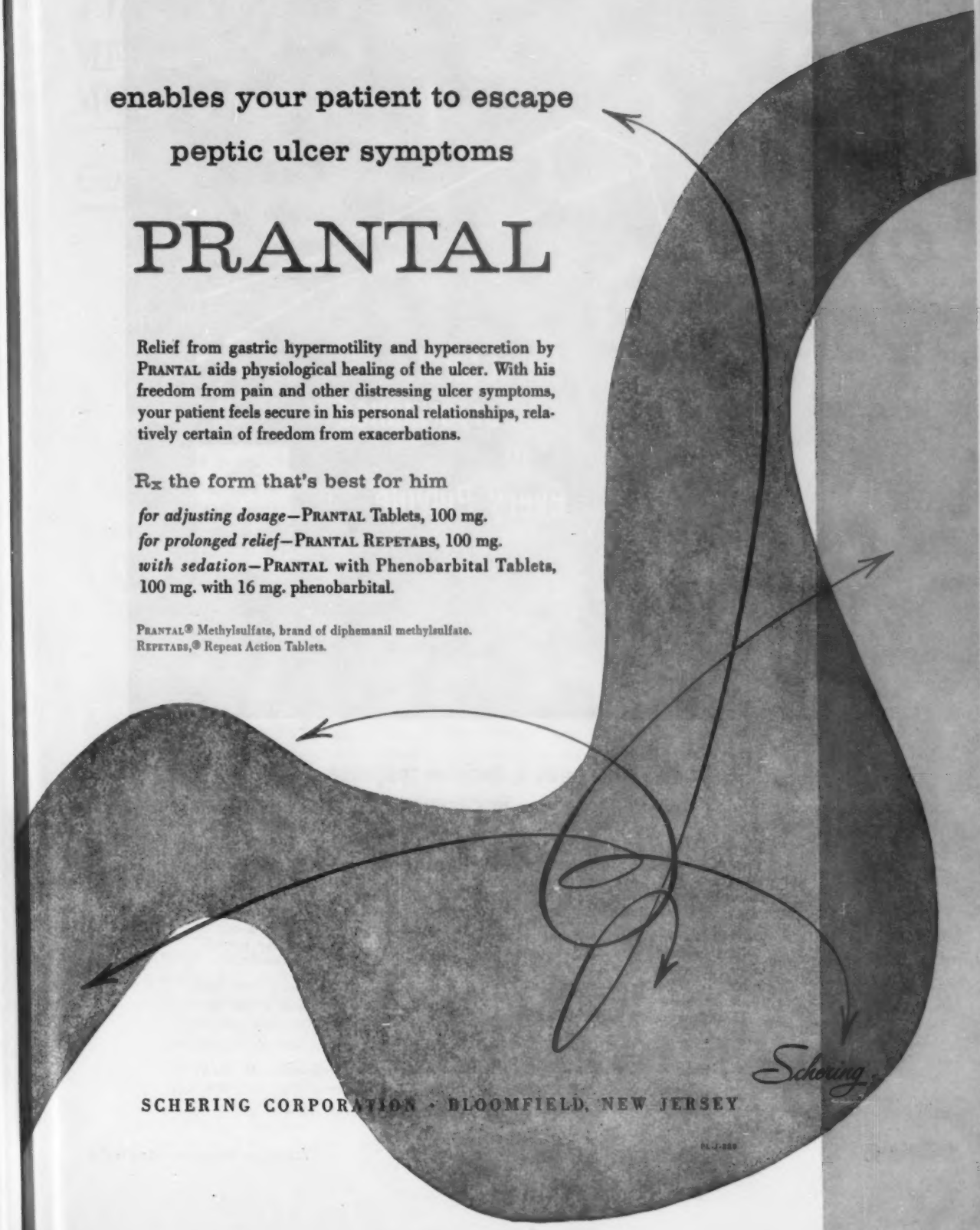

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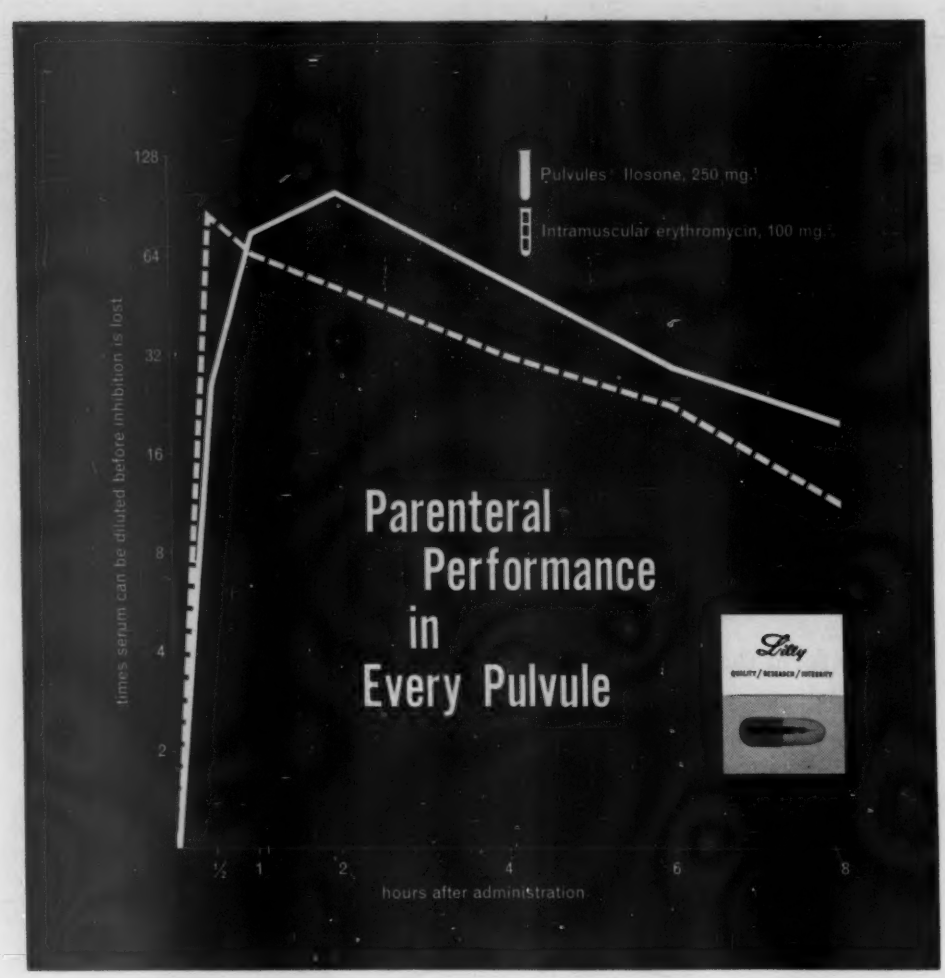

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Parenteral potency—The graph above shows that Ilosone provides antibacterial serum levels comparable to those obtained with intramuscular antibiotic administration.

Parenteral certainty—In more than a thousand determinations, in hundreds of patients studied, Ilosone has never failed to provide significant antibacterial levels in the serum.

The usual dosage for adults and children over fifty pounds is 250 mg. every six hours, but doses of 500 mg. or more may be administered safely every six hours in more severe infections. For optimum effect, administer on an empty stomach. Supplied in Pulvules of 250 mg. (For children under fifty pounds, a 125-mg. Pulvule is also available.)

1. Antibiotic Med. & Clin. Therapy, *5*:609, 1958.
2. Data from Antibiotics Annual, p. 269, 1954-1955.

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The Virginia
MEDICAL
MONTHLY

March, 1959
Vol. 86, No. 3
Whole No. 1282

Guest Editorial....

Problems of the Aged and Aging

SHORTLY after the last annual meeting of The Medical Society of Virginia, Dr. Adams, the President, appointed a committee to study the problems of the Aged and Aging, and report ways and means by which the medical profession in Virginia could help alleviate these problems.

By the time this item reaches you, the President of each constituent medical society will have been asked to appoint a local committee to help the state committee carry out its work.

The problems that these senior citizens have are many. Not all of them are medical by any means. Yet their health is so often markedly influential in determining their abilities to produce and provide for themselves, and in deciding so many factors of importance to their well being, that it is quite essential they be assured of as good health as is possible.

You are probably aware that this issue has become one of political importance. But the most serious and overriding fact to us is whether the medical problems inherent in the situation can be worked out in a sufficient time and solution to allow the medical profession to control the medical care of these people. The Federal Government is pushing hard, with union and liberal element backing, to give "free" medical care via the Forand bill which is coming up again. This bill would provide "free" hospitalization and care up to 60 days a year for everyone who is eligible for social security. I feel certain that you would not set the fee you would collect in these cases. And if you haven't thought of this, it is interesting to note that practically all branches of medicine except pediatrics would be called on to provide this care.

Some of our oldsters can provide for their own medical care, but don't know where to turn. Others can only provide these expenses at a cost of reduced food, housing and other necessities. Many of these people can be put back to gainful employment with a minimum of medical care. Many of them would be better off at work. Providing ways to determine their illnesses and correct them so that they may once again become useful citizens should be Medicine's number one target.

Adequate facilities to determine diagnoses and provide treatment for these people should be undertaken by local medical societies, working with local health departments, hospitals, welfare agencies and governing boards. Where available, local general medical clinics and special clinics may do much to screen and treat all candidates for nursing homes, potential employables and welfare cases.

It is the belief of this Committee that a goodly number of these people, if properly screened, diagnosed and treated, may be returned to usefulness, removed from the tax rolls and hospital beds, and given a new lease on life. It is also our belief that for most effective fulfillment such a program must be sponsored, produced and managed by physicians of each locality.

HARRY C. BATES, JR., M.D., *Chairman*
Committee on Problems of Aging

Skin Grafting in Severe Burns

B. W. HAYNES, Jr. M.D.
Richmond, Virginia

UNTIL APPOXIMATELY 15 years ago, patients receiving severe burns commonly expired within the first 24 to 48 hours in shock. The work of Harkins,[1] Cope and Moore,[2] Evans, Purnell, Robinett, Batchelor and Martin[3] placed the early fluid and electrolyte management of the severely burned patient on firm ground, resulting in the present day use of formulae to approximate the fluid requirements for the individual patient. As a result of the efforts of these and other individuals, the early management of the severely burned patient is now much more successful, by virtue of a better understanding of what constitutes proper fluid, colloid, and electrolyte therapy.

The problem of the successful management of the burn wound is more difficult, and particularly so if extensive areas of third degree burn are present. Many patients, who in previous years would have died during the first day, are now living 10 days or longer, but dying of complications related to the wound rather than inadequate fluid and electrolyte therapy. The problem of extensive dead tissue on the body, plus added infection, constitutes the largest problem in the treatment of burns. Emphasis placed upon the expeditious removal of the burned tissue and early skin grafting to secure healing constitutes the basic approach to the management of the burn wound. Methods used on the Burn Service at the Medical College of Virginia Hospital to accomplish this end are detailed below.[4]

PREPARATION OF THE WOUND FOR SKIN GRAFTING

Basically, the management of the burn wound is designed to (1) prevent or minimize infection, (2) secure expeditious removal of dead and devitalized tissue, and (3) to provide early skin grafting. These objectives may be accomplished by either the open (exposure) method or the closed (dressing) method. Initially, in either case, the burn wound is treated under sterile conditions with adequate cleansing, using a detergent such as pHisohex and saline solution to remove dirt and debris. All blisters are excised and devitalized epithelium removed. These steps convert the wound from a contaminated to a surgically clean one. It must be emphasized that wound treatment is given only after adequate shock therapy has been instituted. Once the wound is properly cleansed and debrided, the treatment of choice is carried out.

Exposure Method. In burns of the face and neck, genitalia, perianal area, and burns limited to one side of the trunk only, the exposure method is preferable. The wound is exposed to air and allowed to dry. As the wound dries, a crust is formed consisting of a fibrin clot originating from the plasma-like fluid which weeps from the wound. As this eschar matures, it becomes a mahogany color, is firm and dry, and, if unbroken, provides an excellent dressing beneath which second degree burns heal rapidly. Cracks in the eschar permit bacteria to enter and cause infection. Should infection occur, it must be drained adequately by local debridement and application of ointment gauze, changed frequently. The eschar usually separates in 10 to 14 days, leaving a healed wound beneath. If the eschar does not separate in 2 to 2½ weeks' time, this is generally indicative of a third degree burn which will require excision of dead tissue and subsequent skin grafting.

Dressing Method. In carrying out the closed or dressing method of treatment, strips of dry fine mesh gauze are placed in single layer thickness directly on the wound. This is followed by a thick padded dressing, generally one to two inches in depth, to provide adequate sterile area for drainage to accumulate without soaking the dressing through. If the dressing becomes soaked through, it provides a means of entrance of pathogenic organisms to the wound by means of multiplication and extension through the protein rich exudate. If the burn crosses a joint area, the part is splinted. If the hand is burned, the fingers are wrapped individually with dry gauze, a soft gauze roll is placed in the palm, and the hand is dressed in the position of function. Prophylaxis against streptococcal infection is achieved by penicillin and streptomycin therapy, usually given for a minimum of 5 days. Established infection is treated on the basis of antibiotic sen-

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sitivity tests. Tetanus prophylaxis is routine, either as antitetanus serum given after negative skin test, or tetanus toxoid booster dose.

Dressings are left undisturbed for 10 to 12 days, at which time second degree burn will be healed for the most part and the third degree burn will be demarcated. If, at the time of the first dressing, the dry fine mesh gauze is tightly stuck and dry, it is undisturbed, and a protective dressing re-applied. If it is moist, indicating infection beneath, it is removed and the wound cleansed. Under ordinary circumstances the change of dressing can be accomplished with average pre-operative medication without the use of general anesthesia. Trilene is helpful for pain associated with dressing and has a wide margin of safety. The unhealed wound is dressed with an ointment impregnated gauze whose purpose is to prevent sticking to the granulation tissue forming beneath and to allow adequate drainage of the wound through the interstices of the gauze. A thick, absorbent, sterile dressing is then applied. This process is repeated at intervals of 5 days to a week until the wound is healed or until, in third degree burns, a clean granulating surface is obtained. Ordinarily, a clean wound ready for grafting can be obtained within one month from injury. If the patient has an obvious well-localized third degree burn, he may be treated by surgical excision under anesthesia in order to expeditiously remove the dead tissue. Under these circumstances, it is rarely wise to carry out skin grafting immediately because of the difficulty in distinguishing living and dead subcutaneous tissue, and continued bleeding is occasionally a problem. Following excision and hemostasis, an ointment impregnated gauze dressing is applied. Skin grafts are then taken and stored in sterile jars in the refrigerator. Adequate blood replacement during the operation is essential. Five days later the dressing is changed, further debridement carried out as indicated, and skin grafting performed at this time, using grafts taken at the original operation.

The basic principle involved in all of these maneuvers is the removal of dead tissue either by body enzymatic processes and/or surgical debridement in order to secure a healed wound or a clean healthy wound receptive to grafting.

It is important that the patient is in good nutritional condition, having received adequate amounts of protein and calories prior to operation, and that his hemoglobin concentration is within a normal range before grafting is performed. In the severely burned patient, a total of 2 to 4 gms. of protein kg/day and 40-50 calories kg/day may be required. Additional protein and calories to the hospital diet supplied as supplementary liquid feedings are usually necessary and are begun as soon as practicable, usually by the 3rd day after injury.

TECHNIC OF SKIN GRAFTING

With the patient anesthetized, the donor site and wound are prepared by thorough cleansing with sterile soap and saline washing, and draped appropriately.

The Use of Large Split-thickness grafts. Split-thickness type grafts are used. These grafts are taken from available donor sites at varying depths depending upon the age of the patient and the size of the burn. In children, grafts are ordinarily cut from 8 to 12/1000 of an inch in depth, whereas in adults 14 to 18/1000 of an inch. In the extensively burned patient with a large area of third degree burn requiring grafting, it is often wise to cut the grafts extremely thin, perhaps 8/1000 of an inch, anticipating re-using the donor site again in order to gain sufficient skin to cover the defect. To accomplish removal of the grafts, the Brown electrodermatome is a simple instrument for the purpose. Minimum experience is required to use the machine well. The thighs offer the best donor sites available on the body, and long strips of skin may be cut from this area. Hemostasis is acquired by hot packs and pressure. We have found it useful to place a single layer strip of vaseline gauze backing on each graft with the gauze trimmed exactly to fit the graft. This step is useful since it provides ease of handling of the graft by preventing rolling of the skin margins. Vaseline gauze backing does not interfere with graft take. As a rule, the strips of skin are placed on the individual defect so that the graft junctures lie in the transverse plane of the body. Since increased scarring occurs at the juncture of the grafts, this maneuver places the long axis of the scar in the transverse plane and thus minimizes the effects of contracture on joint function. By the same reasoning, the use of large sized grafts with minimum graft junctures is best. Perforations of the graft to allow serum escape are unnecessary for good healing. This practice increases scarring, and causes a rough appearance of the graft.

Absolute hemostasis. An essential of technic is to secure absolute hemostasis in the site to be grafted. If granulations are excessive or fibrotic, if some slough still remains, it is necessary to excise these tissues to secure a healthy bed for grafting. This

may be done either by shaving the granulations with a sharp long knife, or by scraping them off with a knife handle. Hemostasis is accomplished by hot packs and pressure which may require 20 to 30 minutes to complete. Occasional bleeding points may require suture ligatures of 4-0 plain catgut. It is essential that the time necessary to accomplish this end be spent, since bleeding beneath the graft preprevents graft healing. Hematomata are a common cause of failure of graft "take" and are preventable.

Immobilization of Graft. Once the grafts are placed, steps must be taken to assure that they are immobilized in position. The necessary step may vary from simply laying the graft on the wound to placing sutures in the normal skin surrounding the graft and tying these over a stent. The latter method is best adapted to areas difficult to immobilize such as the axilla or neck. The former method is adaptable to circumferential burns of the extremities where a firm dressing can be applied without shifting the grafts. Parenteral penicillin is administered for 5 days following operation to prevent streptococcal infection in the grafted site.

Adequate Wound Drainage Established by Dressing. Dressings are left undisturbed until 5 days after grafting. At this time they are removed, as are the sutures, and the vaseline gauze backing carefully separated from the grafts. Any devitalized graft is excised and the wound cleansed and freed of exudate, thus establishing adequate drainage. If there are hematomata or seromata beneath any part of the graft, a small incision is made into this area and the clot or serum evacuated. An attempt is made to save the graft overlying the hematoma if possible. We ordinarily anticipate getting 90 to 95% "takes" of grafts performed in this manner. An ointment impregnated gauze dressing is applied which remains in place for 5 more days. At this time, if healing is progressing normally, some motion is allowed, progressing to a full range of motion and complete functional recovery.

RESTORATION OF FUNCTION

Usually by the 10th to 14th day following grafting, active and passive motion can be instituted which is a vitally important part of the patient's recovery. In extensive grafts, and in grafts of the hand, neck, elbows, and knees, the services of a trained physiotherapist to assist in accomplishing the complete functional recovery of the patient are essential. The long period of immobilization that the patient has gone through leaves him with a decreased range of motion in joint areas. This can be recovered in most instances only by diligent effort on the part of the patient and the physiotherapist.

SUMMARY

To assure successful skin grafting in severe burns, the following factors are believed to be of importance.

1. Early expeditious removal of dead tissue by dressings and excision to achieve a clean surgical wound.
2. Careful attention to the technic of skin grafting including (a) use of large split-thickness grafts, (b) absolute hemostasis, (c) immobilization of grafts, and (d) adequate wound drainage following operation.
3. Restoration of function by early intensive physiotherapy.

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Sustained Release Sulfaethidole in the Treatment of Urinary Tract Infections

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MARSHALL[1] and Harries[2] have demonstrated that the most effective treatment with the sulfonamides or any other anti-bacterial agent can be expected only if therapeutic blood concentrations are continuously maintained for prolonged periods of time. Until recently, to attain these concentrations, sulfonamides had to be taken anywhere from 4 to 6 times a day. Because of the inconvenience inherent in regimens of this type, patients often failed to follow such a schedule, and, as a result, blood concentrations became sub-optimal, and therapy was less effective.

Recently, several sulfonamides have become available that reduce the number of daily doses, either because of inherent properties of the drug, or because of properties provided by the form in which the drug is prepared. One of these sulfonamides, sulfaethiodole [N_1-(5-ethyl-1, 3, 4-thiadiazole-2yl)-sulfanilamide] has been prepared as a sustained release liquid (Sul-Spansion) and tablet (Sul-Span-tab), and has been reported to produce prolonged therapeutic blood levels and high urine concentrations on a schedule of only two doses a day.[3-5] These preparations are designed to release, upon ingestion, an amount of the drug that is necessary to establish therapeutic blood levels, and to maintain this level by a slow and continuous release of the remainder of the drug during succeeding hours. This prolonged action is a result of the pharmaceutical form of the drug; not of its pharmacologic properties (e.g. slow absorption or excretion). The following study was performed to evaluate the clinical efficacy of the sulfaethidole sustained release tablet* in the treatment of patients suffering from urinary tract infections.

METHODS

Eighty-seven private patients (28 male and 59 female) with infections of the urinary tract were treated during the evaluation. The patients ranged in age from 3 to 80 years (average age: 46), and complained of a variety of urinary symptoms, occurring singly or in combination, that included frequency of urination, dysuria, nocturia, incontinence, supra-pubic distress and flank pain. Results of urinalysis showed that all urine specimens contained pus and, in most cases, blood cells. Diagnoses (Table 1) were based on urological examination, symptomatology, and urinalysis.

Sulfaethiodole sustained release tablets were prescribed for all patients; no concomitant medication was used. Adults received 2 tablets (1.3 gm.) twice a day (q12h); children who weighed less than 75 pounds received 1 tablet (.65 gm.) twice a day. As with all sulfonamides, the initial or priming dose was twice that of succeeding doses. Because sulfaethidole is highly soluble over the usual pH ranges of urine, the use of alkalis or increased fluid intake was unnecessary. Additional urological procedures (urethral dilation or surgery) were required by 8 patients.

Therapy was continued for from 1 week (2 patients) to 8 weeks (1 patient); the average period of treatment was 2.6 weeks. Patients were examined at frequent intervals during the course of treatment.

Urine specimens were obtained from all patients at the time of their first examination and after the completion of treatment for routine urinalyses and bacterial culturing.

CLINICAL RESULTS

Evaluation of improvement was based on the disappearance of physical symptoms of infection and by the disappearance of blood and pus cells from the urine. Results were considered good when the patient became completely asymptomatic; fair when only partial remission of symptoms occurred; and poor when little or no improvement occurred. By these criteria, therapy yielded good results in 75 (86%) of the patients, fair results in 8 (9%) and poor results in 4 (5%) [Table I]. Those patients in whom good results were obtained usually experienced relief of their physical symptoms within 72

Sulfaethidole—formerly called Sulfaethylthiadiazole.

*Provided for investigational use by Smith Kline & French Laboratories, Philadelphia, Pennsylvania.

TABLE I

RESULTS OF SUSTAINED RELEASE SULFAETHIDOLE THERAPY BASED ON CLINICAL AND BACTERIOLOGICAL FINDINGS

DIAGNOSIS	No. of Patients	CLINICAL RESULTS			BACTERIOLOGICAL RESULTS		
		Good	Fair	Poor	Good	Poor	Insuff. Data
Cystitis (recurrent, sub-acute and chronic)	38	30	5	3	20	12	6
Hemorrhagic Cystitis, acute	18	18	.....	.....	17	.....	1
Prostatitis	16	12	3	1	10	6	.....
Pyelonephritis, acute	9	9	.....	.....	5	2	2
Ureteral Stone with infection	2	2	.....	.....	.....	2	.....
Urethral Stricture with infection	1	1	.....	.....	1	.....	.....
Prostatic Carcinoma with infection	1	1	.....	.....	.....	1	.....
Non-Specific Urethritis	2	2	.....	.....	1	.....	1
Total	87	75 (86%)	8 (9%)	4 (5%)	54 (70%)	23 (30%)	10

hours. Seven to 10 days of treatment were required, generally, before significant clearing of the urine could be observed.

Three of the four patients who did not benefit from therapy were found to have either structural abnormalities of the urinary tract (urethral stricture) or chronic recurrent pyelonephritis. The remaining patient showed little or no improvement, and continued to have recurrences of acute cystitis.

No evidence of serious side effects—crystalluria, hematuria, renal blockage, skin eruption or any other allergic reaction—was found. Four patients stated that they experienced a loss of appetite, 3 complained of weakness, and 2 of headaches. These discomforts may or may not have been caused by the drug.

BACTERIOLOGICAL RESULTS

Bacteriological results were considered good when the original infecting organism had been eliminated from the urine. In 10 patients, no results could be determined since no infecting organisms were found in a pre-treatment culture. Post-treatment cultures obtained from the remaining 77 patients showed that the original infecting organism had been eliminated in 54 (70%) patients. Thirty-six of these 54 cultures were completely negative, while 18 indicated the presence of bacteria other than those that predominated in the original culture. Twenty-three (30%) cultures were positive for the original infecting organism.

DISCUSSION

The results of this study indicate that sulfaethidole is a safe, effective, chemotherapeutic agent in the treatment of urinary tract infections. The prolonged action of the sustained release form has obvious advantages in terms of convenience and efficacy. Of importance to us was the absence of any severe side effects, particularly those associated with renal function. The rapid excretion and low acetylation rate of the drug, reported by Foltz et al[8], may be responsible for the absence of these complications.

Bacteriological results were obtained in only 77 patients because of negative growths reported in 10 pre-treatment cultures. Our failure to achieve positive results in these cultures may have been due to the limitations imposed by laboratory methods as reported by Arnold[9], who found that the success rate of obtaining positive cultures is directly related to the method used and it may vary from 28% to 87%. The success rate of our pre-treatment results, 89% positive cultures, agrees with Arnold's findings, and suggests that repeat cultures are advisable in cases where the original report is negative.

Eighteen of the final urine cultures revealed the predominance of organisms other than those which were present in the initial cultures. As Kass[10] points

out, these positive results may have been due to contamination. It is also possible that these organisms were strains that had been suppressed by overgrowth of the initial infection or that they were secondary invaders of the urinary tract. In any case, the presence of these bacteria seems to have had little effect on the final outcome of therapy since no recurrence of disease has been reported by any of the patients in whom good clinical results were obtained.

Since these sources of error may also be responsible for the disparity between our clinical and bacteriological results (86% and 70% good respectively), we are inclined to agree with Harries and Mitman[11] that the efficacy of sulfonamide therapy is best judged by clinical improvement.

SUMMARY AND CONCLUSIONS

1. A sustained release tablet form of sulfaethidole was used in treating 87 private patients suffering from infections of the urinary tract.
2. Clinical results showed that 75 (86%) of the patients had a good response to therapy, 8 (9%) fair, and 4 (5%) poor response.
3. Bacteriological results showed that the infecting organisms were eliminated in 54 (70%) of the 77 patients on whom enough data were available for comparison.
4. No severe side effects (e.g. crystalluria, hematuria, renal blockage) were reported or discovered.

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Tuberculosis

Tuberculosis as a cause of death has dropped from first to 13th place in the past half century, but one new case is reported every five minutes in the United States. This fact is revealed in the current issue of *Patterns of Disease*, prepared by Parke, Davis & Company for the medical profession.

In the past 20 years alone the number of tuberculosis deaths has dropped about 80 per cent. The number of newly reported cases, however, has declined only about 20 per cent during this period.

This publication stresses the need for more intensive drives to detect the disease. For every known case, it reports, there is one unknown tuberculous person. Total number of known and unknown cases (both active and inactive TB) in the U.S. is estimated at 800,000.

"To eradicate tuberculosis, the disease must be detected and treated early, while lesions are small and readily amenable to therapy." Yet, for the past five years, only about 22 per cent of newly reported active and probably active cases have been in the early stage. In 1956, about 20 per cent of persons who died of tuberculosis had not been previously reported as having the disease.

Primary Ovarian Malignancy

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THE INSIDIOUS ONSET, the oft times rapid growth, and spread before significant signs and symptoms of the process became manifest, make ovarian malignancy a distressing and disheartening disease entity to effectively treat. The medical literature is filled with discouraging reports on ovarian malignancies of all types, with reports of five year survivals ranging from 9.3% to 35%.[1,3] Ovarian carcinoma is said to be the third most frequent genital malignancy[3], and according to some authors[1], seems to be definitely increasing in incidence. With these facts in mind, it was deemed advisable to make an effort to appraise the diagnosis, treatment, and to a limited extent, the results of therapy, of primary malignancies of the ovary, at the Medical College of Virginia Hospitals.

During the years 1953 to 1957 inclusive there were 7354 admissions to the gynecological service of the Medical College of Virginia hospitals. During this same period of time we were able to uncover fifty one cases of primary ovarian carcinoma of all types, an incidence of 6.9 cases per one thousand admissions. The likelihood of a woman of 40 years, subsequently developing ovarian carcinoma is nearly one per cent (.930), and gradually diminishes thereafter according to Randall and Gerhardt[4], which has an important bearing on the question of early diagnosis of ovarian malignancy.

One of the simplest and best classifications of ovarian neoplasms is that outlined by Munnell, Jacox, and Taylor[1], which lists these tumors according to their histogenetic origin by the recognition of four simple groups: *viz*, the epithelial tumors, the connective tissue tumors, the mixed tumors, and tumors of specific gonadals cells, or the so-called dysontogenetic tumors. Two of these same authors[2] in 1949 proposed a classification of ovarian malignancies according to the extent of the disease, based on four simple stages, (Table I) which together with the classification of ovarian tumors, has been utilized in this report. As in the majority of reports on this subject, our study revealed a preponderance of papillary serous cyst adenocarcinoma, followed by pseudomucinous cystadenocarcinoma, undifferentiated carcinoma, granulosa cell carcinoma, dysgerminoma, and the rarer types of malignancies. (Table II)

Table I
Stages of Carcinoma of Ovary

Stage I	Carcinoma Limited To One Ovary.
Stage II	Carcinoma In Both Ovaries.
Stage III	Carcinoma Involves Other Pelvic Structures.
Stage IV	Carcinoma Spread To Upper Abdomen Or Elsewhere Outside Pelvis.

Table II
Primary Ovarian Malignancies
Medical College of Virginia Hospitals
1953-1957

Types	
Papillary Serous Cystadenocarcinoma	31
Pseudomucinous Cystadenocarcinoma	5
Undifferentiated Carcinoma	5
Granulosa Cell Carcinoma	3
Dysgerminoma	3
Hypernephroid Carcinoma	1
Mesonephric Carcinoma	1
Teratoma	1
Squamous Cell Epithelioma in Dermoid Cyst	1
Total	51

The clinical stages of the tumors revealed an equal number of stage I and stage IV growths, and about the same relationship between stage II and stage III neoplasms. (Table III) The youngest

Table III
Stages of Primary Ovarian Malignancies in Relation to Type of Malignancy

	Stage I	Stage II	Stage III	Stage IV
Papillary Serous Cystadenocarcinoma	13	5	3	10
Pseudomucinous Cystadenocarcinoma	3	.....	1	1
Granulosa Cell Carcinoma	3	.....	.....	.....
Hypernephroid Carcinoma	1	.....	.....	.....
Mesonephric Carcinoma	1	.....	.....	.....
Undifferentiated Carcinoma	.....	.....	.....	5
Dysgerminoma	.....	.....	.....	3
Teratoma	.....	.....	.....	1
Epithelioma in Dermoid Cyst	.....	.....	.....	1
Totals	21	5	4	21

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patient in this series was 15 years of age and the oldest 71. It is interesting to note that fifteen of these cancers occurred in women under forty years of age, and that five of those were classified as stage IV growths. (Table IV) The papillary serous

TABLE IV

AGE AND STAGE OF PRIMARY OVARIAN MALIGNANCIES

DECADE	No. of Cases	Stage I	Stage II	Stage III	Stage IV
10–20	1				1
21–30	6	4			2
31–40	8	3	3		2
41–50	12	5	2	2	3
51–60	12	5		1	6
61–70	10	4			6
71–80	2			1	1
Totals...	51	21	5	4	21

cystadenocarcinoma were encountered from the third through the eighth decade with the majority of them occurring from the fourth decade on. The five cases of pseudomucinous cystadenocarcinoma occurred in the fifth and sixth decades, while the five cases of undifferentiated or unclassified carcinoma were distributed one each from the fourth decade. Two of the three granulosa cells carcinomas were found in patients in the seventh decade, with one being encountered in a patient in her thirties. Dysgerminoma, supposedly an early occurring malignancy was not apparent until the sixth and seventh decades in two cases and was found in a 21 year old girl in the third instance. The malignant teratoma was found in a fifteen year old child, and the mesonephric carcinoma in a woman in her late twenties, while the hypernephroid carcinoma and the squamous cell epithelioma is a dermoid cyst both occurred in patients in the fifth decade. (Table V)

Abdominal pain was present in over half the cases, while just under one half of the patients also complained of abdominal enlargement. Weight loss, abnormal vaginal bleeding, urinary symptoms, vaginal discharge, and abdominal pressure made up the remainder of the complaints. In only two cases were there no symptoms of the disease prior to definitive treatment. (Table VI) All of these patients

TABLE VI

SIGNS AND SYMPTOMS OF PRIMARY OVARIAN MALIGNANCIES

Abdominal Pain	37
Abdominal Enlargement	22
Abdominal Pressure	10
Abnormal Vaginal Bleeding	13
Genito-Urinary Symptoms	12
Weight Loss	13
Vaginal Discharge	8
No Symptoms	2

were subjected to surgery because of the presence of an abdominal and/or pelvic mass. Eleven of the patients were found to have ascites prior to surgery, and ten of those are now known to be dead. Six of the patients were diagnosed as having carcinoma of the ovary elsewhere, six of them were diagnosed at operation, five were unsuspected until the condition was discovered by the pathologist, and thirty-three cases were diagnosed pre-operatively in this institution. In one case there was no statement concerning the time of the diagnosis. Papanicolaou smears were utilized in five cases, two of them being reported as positive for tumor in aspirated ascitic fluid, and three being negative.

The therapy of ovarian carcinoma in this institution has consisted chiefly of total abdominal hysterectomy and bilateral salpingo-oophorectomy in those cases considered to be amenable to surgical treatment. In instances of stage III and IV tumors, exploratory laparotomy and biopsy of the lesion or lesions followed by irradiation therapy has been employed. In some of these advanced cases removal of all involved tissue, including omentectomy, followed by x-ray therapy has been used. The employment of chemotherapeutic agents, such as nitrogen mustard and its derivatives, tri ethylenemelamine (TEM) and thio-

TABLE V

AGE AND TYPE OF PRIMARY OVARIAN MALIGNANCIES

DECADE	P.S.C.C.	P.C.C.	U.C.	G.C.	Dys.	Hyp.C.	Mes.C.	Ter.	Sq.C.
10–20								1	
21–30	4				1		1		
31–40	6		1	1					
41–50	8	1	1			1			1
51–60	6	4	1		1				
61–70	6		1	2	1				
71–80	1		1						
Totals...	31	5	5	3	3	1	1	1	1

triethylene phosphoramide (thio-TEPA) are in the process of being evaluated. Bateman[5], and Shay and Sun[6] have reported encouraging temporary results from the use of thio-TEPA in the treatment of advanced carcinoma of the ovary.

Only eight of the cases in this small series have been followed for five years. Seven of those eight patients are now dead, the only survivor being a patient with a stage I granulosa cell carcinoma that was discovered accidentally at operation for uterine fibroids. Thirty of the entire series of patients have died since treatment, which of course, represents a very poor survival rate. Three of the patients in this series have been lost to follow-up, but one of them has been presumed dead. The largest number of deaths occurred in patients with stage IV tumors, of whom 90% have already demised. Fifty per cent of the stage III tumor patients are already dead, forty per cent of the stage II cases and one third of the stage I carcinomas. (Table VII)

TABLE VII

DEATHS

	Stage I	Stage II	Stage III*	Stage IV
Papillary Serous Cystadenocarcinoma	4	2	2	9
Pseudomucinous Cystadenocarcinoma	1	.....	.....	1
Unclassified Carcinoma	.....	.....	.....	4
Granulosa Cell Carcinoma	1	.....	.....	.....
Dysgerminoma	.....	.....	.....	3
Hypernephroid Carcinoma	.....	.....	.....	.....
Mesonephric Carcinoma	1	.....	.....	.....
Malignant Teratoma	.....	.....	.....	1
Epithelioma in Dermoid Cyst	.....	.....	.....	1
Totals	7	2	2	19

*One of the Stage III tumor cases has been lost to follow-up and is presumed dead of carcinoma.

The chief concern of those managing these patients is, of course, survivals. As previously stated we have only one five year survival out of eight candidates. These figures in general follow the clinical stage of the disease, with the highest number of survivors occurring in the least extensive tumors, as one would expect. (Table VIII) It should be emphasized that these figures mean very little at this time since we have not reached the end of the five year survival time in but a small group of patients. Also there are many reports in the literature of so-called late recurrences of this disease, well beyond the five year survivals. The histologic grading of the tumors has been shown to be of some significance in prognosis, in addition to the extent of the growth, and the type of tumor being dealt with. Thus one would expect a higher percentage of survivors in the more highly differentiated types of tumor than in the undifferentiated ones, given the same degree of local extension, and depending on the type of new growth. While again these figures mean very little for several reasons, this fact seems to be borne out in our observations since only one out of five of the undifferentiated carcinomas have survived to date.

TABLE VIII

SURVIVALS

Type of Tumor	Stage I	Stage II	Stage III	Stage IV
Papillary Serous Cystadenocarcinoma	7	3	1	2
Pseudomucinous Cystadenocarcinoma	2	.....	1	.....
Granulosa Cell Carcinoma	2	.....	.....	.....
Undifferentiated Carcinoma	1	.....	.....	.....
Totals	12	3	2	2

Of the twelve stage I survivors, three received surgery plus irradiation, and nine were treated by surgery alone. (Table IX) Two of the stage II lesions were treated by the combined method, while one case did not receive any irradiation therapy. The two stage III survivors were divided as to the method of treatment. There can be little surprise in the fact that the stage IV survivors received the works. One of these has survived less than a year, while the other has survived 3-4 years. (Table X)

In discussing what can be accomplished in improving our results in this group of patients, emphasis must be placed on early recognition of the malignant process, as it is in consideration of all types of malignancies. Little would be gained by broaching the subject of prophylactic oophorectomy at this time. Certainly the proponents and opponents of this practice both have valid arguments on their side. We should delve further into the necessity for and the practicality of more frequent routine pelvic examinations on our patients. These examinations, plus the intelligent management of ovarian neoplasms, bearing in mind the consistency of the neoplasm, its mobility, size, and extent, in addition to the age, childbearing status, and general condition of the patient, seem to offer the chief hope for the early detection and cure of ovarian malignancies. To date there are no specialized laboratory tests that

TABLE IX

SURVIVALS ACCORDING TO METHOD OF TREATMENT

	SURGERY AND IRRADIATION*				SURGERY ALONE			
	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV
Papillary Serous Cystadenocarcinoma	2	2	.....	2	5	1	1	.....
Pseudomucinous Cystadenocarcinoma	1	.....	1	.....	1	.....	.....	.....
Granulosa Cell Carcinoma	.....	.....	.....	.....	2	.....	.....	.....
Undifferentiated Carcinoma	.....	.....	.....	.....	1	.....	.....	.....
Totals	3	2	1	2	9	1	1	.....

*Three cases received Thio-tepa or radio-active gold intra-peritoneally in addition to other therapy.

TABLE X

PERIODS OF SURVIVAL AS RELATED TO STAGE OF TUMOR AND METHOD OF TREATMENT

	SURGERY AND IRRADIATION				SURGERY ALONE			
	Stage I	Stage II	Stage III	Stage IV	Stage I	Stage II	Stage III	Stage IV
Less than 1 yr.	1	1	.....	1	2	.....	.....	.....
1–2 yrs.	2	.....	1	.....	1	1	.....	.....
2–3 yrs.	.....	1	.....	.....	1	.....	1	.....
3–4 yrs.	.....	.....	.....	.....	3	.....	.....	.....
4–5 yrs.	.....	.....	.....	.....	2	.....	.....	.....
Totals	3	2	1	2	9	1	1	0

will aid us in picking up early ovarian cancer, hence we must rely on our clinical acumen, patient, and inter-professional cooperation to improve the dismal picture now presented by ovarian malignancies.

Realizing that some ovarian neoplasms, while still quite localized can metastasize widely, we must still insist on routine pelvic checkups. The question of timing of these checkups poses a serious problem. Yearly examinations might prove too infrequent, even in the younger group of women, since in our series, thirty of our patients had symptoms less than 6 months. Yet the practicality of having one's patient obtain a routine examination every six months, when she is feeling well, is not very great. However, if every female patient would have periodic pelvic, and other examinations, our figures in this and other types of malignancies, would of necessity be vastly improved; and the more frequently the examinations are made, the more often early lesions will be discovered. At the same time the overemphasis on cancer phobia must be deplored, but rather the female public should be calmly and sanely urged to maintain their general health through periodic examinations. It goes without saying that no examination of a female patient is complete, that does not include pelvic examination. Too often there are instances of patients being treated for gastro-intestinal or other disorders, only to subsequently find, often times too late, that the primary lesion is in the pelvis.

On discovering an adnexal mass, the proper procedure from that point on, depends on several factors. Should the mass be cystic and under five centimeters in diameter, the patient can be observed at rather frequent intervals. Growth of the cystic mass should result in exploratory laparotomy. The finding of any type of solid ovarian tumor demands immediate exploration of the patient. Tumors of large size, whether cystic or not should be removed as promptly as possible. Doubt in the mind of the physician concerning the characteristics of the ovarian lesion, whether he be specialist or family doctor, calls for consultation in the interest of the patient.

In the case of women, at, during or past the menopause, a little more radical outlook is called

for. Just before, during, and shortly following the climacteric more frequent checkups are required. The finding of any type of ovarian growth in those women past the menopause indicates laparotomy and removal, since dysfunctional cysts do not occur in that group of women, and endometrial cysts should have regressed following the menopause. Women during the climacteric may be subject to dysfunctional and endometrial cysts, as well as uterine growths such as fibromyoma which may be difficult at times to distinguish from ovarian new growths. In this group also, a more radical approach may be made to their problem, since the childbearing function does not have to be considered usually. The same general statements can be made of those women just preceding the climacteric.

In summary, then, we, as physicians, should strive for periodic general and pelvic checkups on our female patients, preferably at six monthly intervals, but certainly at least yearly. These should be made more frequently just preceding, during, and following the menopause. The intelligent management of adnexal masses, when discovered, with the liberal use of consultation, when indicated, combined with periodic examination on a frequent enough basis, should aid in the early detection of ovarian growths.

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Crash Diets for Athletes

Crash diets and drying out by high school wrestlers and boxers trying to make a certain weight class are to be condemned, according to the American Medical Association's Committee on Injury in Sports. In a statement in the January 26 AMA News, the committee, along with the National Federation of State High School Athletic Associations, called for an unannounced "weighing in" at the beginning of the season. A boy should remain throughout the season in the class established for him at the "weighing in." The groups also suggested an increased number of weight classes for athletes to minimize the advantage of making a certain class.

Many schools have interscholastic wrestling, but only two states (Idaho and Oregon) permit interscholastic boxing in high school.

Boys going on crash diets several times a year to make weight classes led to the statement.

"Under the strong motivation and appeal of sports, the diets and drying out may be carried to great extremes. Such efforts are not consistent with the spirit of sport in that they tend to defeat regulations designed to insure fair and equitable competitions."

The crash diets. "sometimes approaching the starvation level," also are condemned from a health standpoint. "Disturbing the fluid balance of the body by drying out holds serious health hazards."

"These dangers are intensified in the immature organism of the growing adolescent athlete. They are also intensified by periodic weighings which encourage the athlete to resort to such practices at frequent intervals during the season."

Under the present system in which crash diets are used, an athlete may be competing in a class below that in which he rightfully belongs, or a boy competing in his proper class may be pitted against much heavier boys who "made" the weight below their real class.

No plans of classification of athletes is infallible, but they believe their recommendations "provide the best guarantee of equitable competition with a healthful experience for the participants."

Management Of Recent Midfacial Fractures

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IN THIS PRESENTATION, we will consider those midfacial fractures which, we have observed, have sometimes been overlooked and underestimated, or in which there has been a delay in recognition of the extent of the injury. Treatment, therefore, has not been satisfactory because of the influence of these various factors and, in addition, in some instances, because the initial examiner has been reluctant to advise that his patient, especially if a child, be subjected to an operative procedure under general or even local anesthesia.

Massive soft tissue and bony injuries, not infrequently encountered, will not be considered, for the diagnosis and need for treatment in this group are quite obvious and urgent. In this paper, the cases excluded are those with multiple facial lacerations, multiple general body injuries, cerebrospinal rhinorrhea, severe hemorrhage, and shock.

In the midfacial injuries, we will include those with minor lacerations, contusion, ecchymosis, and edema of the overlying and intranasal soft tissues, masking more consequential cartilaginous and bony trauma. That this type of disability is misjudged, for the various reasons mentioned, is apparent enough to us to justify this presentation.

The bones involved are mainly those of the nose, roof of the mouth, ethmoid and maxillary sinuses, and floor of the orbit.

These injuries are usually incurred in athletic contact, transportation mishaps, falls—particularly in cases of children—and altercations. Often, from the history, the force responsible for the disability will not be considered sufficiently severe to cause a significant injury. This is misleading to the initial examiner and the patient, so that after the swelling has subsided, the resulting deformity and malfunction are disclosed, and it will be evident that the contact has not been as harmless as previously thought.

A knowledge of the symptoms and signs produced by fracture displacement of this group of facial bones and cartilages is important and should be emphasized. Examination of these cases may be accomplished without the need for any special instruments. They will be listed with brief additional comments. (Table 1)

1. *Cutaneous Soft Tissue Reaction.* Edema and swelling of the contused and lacerated tissues occur very rapidly, thus precluding early accurate evaluation of the status of the underlying facial bones. The degree of this reaction is of no real consequence, as it will disappear with time. Displaced fractured bones will be significant, however. (Fig. 1).

Fig. 1. Apparatus for reduction of fractures of the nose and maxilla. Note edema and ecchymosis.

2. *Subconjunctival Hemorrhage and Ecchymosis.* The presence of this type of hemorrhage, especially in the lower half of the eye, is highly suggestive of fracture involving the floor of the orbit. (Fig. 2).

3. *Diplopia.* Double vision in certain fields is also indicative of a fracture displacement involving the bones composing the orbital cavity and, secondarily, the extrinsic ocular muscles. This disability is very rarely a permanent one if the treatment is correctly performed without too much delay. The testing for diplopia in the various fields of vision

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Fig. 1 has been utilized in a previous publication, the Southern Medical Journal 42: 3, March, 1949.

Fig. 2. Fracture of right malar-maxillary area. Note subconjunctival hemorrhage and depressed deformity of right malar area.

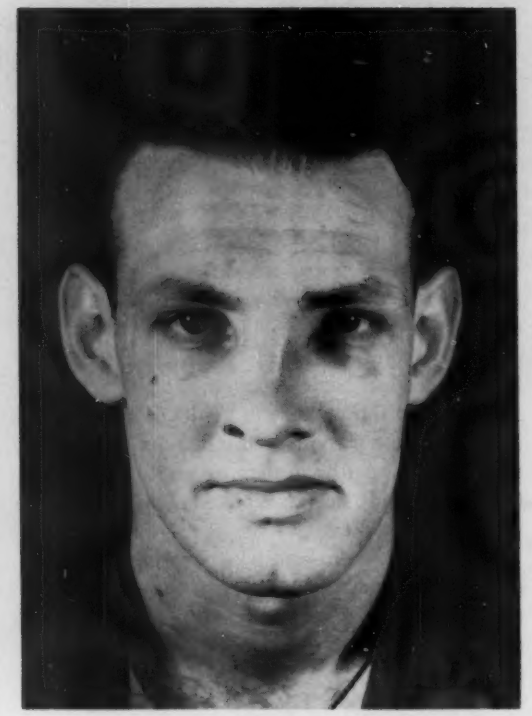

Fig. 3. Fracture displacement nasal bones. Reduction as outpatient, local anesthesia.

is a simple procedure and should be carried out in the event of any midfacial or cranial trauma.

4. *Deformity.* Flattening of the cheek region, depression or lateral deviation of the nose, or interruption of the continuity of the orbital ridges may be visually noted or palpated beneath the soft tissue swelling. (Figs. 2 and 3).

5. *Nasal Obstruction.* Unilateral and/or bilateral obstruction to the nasal airway may be the result of displaced osseous and cartilaginous structures composing the nose. However, edema and hemorrhage into the soft tissues of the nose may be responsible for the obstruction, particularly in children. It is important to determine the cause of this obstruction, for prompt evacuation of a hematoma may prevent cartilage destruction and infection, the results of which are difficult to correct in subsequent secondary reconstructive and plastic procedures.

6. *Epistaxis.* Nasal bleeding immediately after the occurrence of the trauma is evidence that the nasal mucous membranes have been lacerated. Later slight postnasal bleeding indicates laceration of the mucous membranes of the sinuses, mainly the antra. The cavity is emptied slowly by gravity and by the action of the cilia.

7. *Anaesthesia.* A lack of sensation or numbness of the skin of the cheek and/or of the upper teeth will indicate a fracture of the maxilla involving the second division of the fifth nerve. Sensation usually returns after a period of some weeks.

8. *Dental Malocclusion.* A fracture displacement of the maxilla, with or without involvement of the teeth-bearing alveolar process per se, may result in malalignment of the teeth so that there is not the identical contact present as prior to the accident. Dental malocclusion indicates a fracture which may not be initially evident to the examiner. This point can be promptly established by properly questioning the patient.

9. *Less Common.* (a) Subcutaneous emphysema after blowing the nose. (b) Limitation of motion of the lower jaw, which is secondary to masseter muscle contusion or spasm and possibly to the encroachment of a depressed zygomatic arch upon the coronoid process of the mandible. (c) Pain which, surprisingly enough, is not a major complaint.

The establishment of the complete diagnosis is aided by radiographic studies of the facial bones. In fact, full facial bone x-rays probably should be obtained in all except the most minor type of injuries

and all in which legal and insurance implications are anticipated.

We have learned from experience that roentgenograms of the zygomatic arches and of maxillae (Waters and basal views) are indispensable in establishing the full diagnosis and in planning the treatment. Those of the nasal bones are less important, for the clinical impression is of more value here than anything else. Also, it must be recalled that depending upon the type of healing, older fracture lines of the nasal bones may be confused with newer ones over an infinite period of time. Again, a point of interest is that fractures of the midfacial bones in preschool children (minus 6 years of age) are rare; the resulting injuries are more commonly those of the soft tissues and the cartilages of the nose. The gravity of neglected hematomas in this area has been previously mentioned.

MANAGEMENT

Lacerations should be closed primarily as promptly as possible. After careful cleansing, the edges of the wound are approximated with fine sutures, the material usually being silk (5 or 6 zero). If possible, existing fractures should be reduced at the same time, but this is not absolutely necessary. We often receive patients from a distance, referred for definitive treatment of the fractures after the lacerations have been repaired. Also, on many occasions, one wishes to delay reduction of the fractures until after repair of the lacerations, in order that plans may be made for treatment of the bony injuries. This brings up the time factor in the management of fractures.

Clinical fibrous union of fractures of the midfacial region takes place normally within three weeks or a few days in excess after the injury, those not involving the teeth-bearing alveolar process, the shorter time. The union is fibrous in nature except in the rare areas where the bony fragments are approximated exactly end to end, where it may be osseous.

It has been our experience that one can satisfactorily reduce the vast majority of fractures of the nasal, maxillary, and zygomatic bones within seven or eight days after the injury, and this can be done without resorting to any mechanism for traction upon the parts, etc. That is, once reduced, within this period of time, the fragments will remain in the proper position with minimal efforts for immobilization being necessary. After a period of from two to three weeks following the injury, reduction may be accomplished without too much difficulty; but immobilization of the fragments becomes more of a problem. In these instances, there is a tendency for the fragments to return to their displaced positions after the reduction. After three weeks, for reduction, forceful refracture of the part with definite measures to obtain immobilization and stabilization, becomes a necessity. After a prolonged period of time, say from four to five weeks plus, it is often advisable

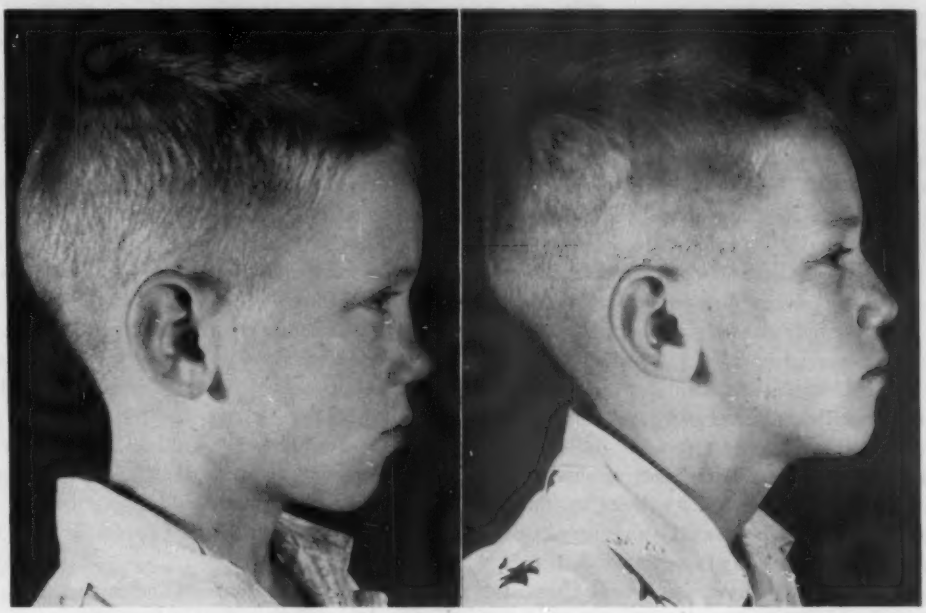

Fig. 4. Old depressed nasal fracture requiring cartilage implant. Before and after.

to perform some type of plastic procedure, such as a rhinoplasty or the use of osseous implants or grafts to improve the function and appearance of the area. (Figs. 4 and 5).

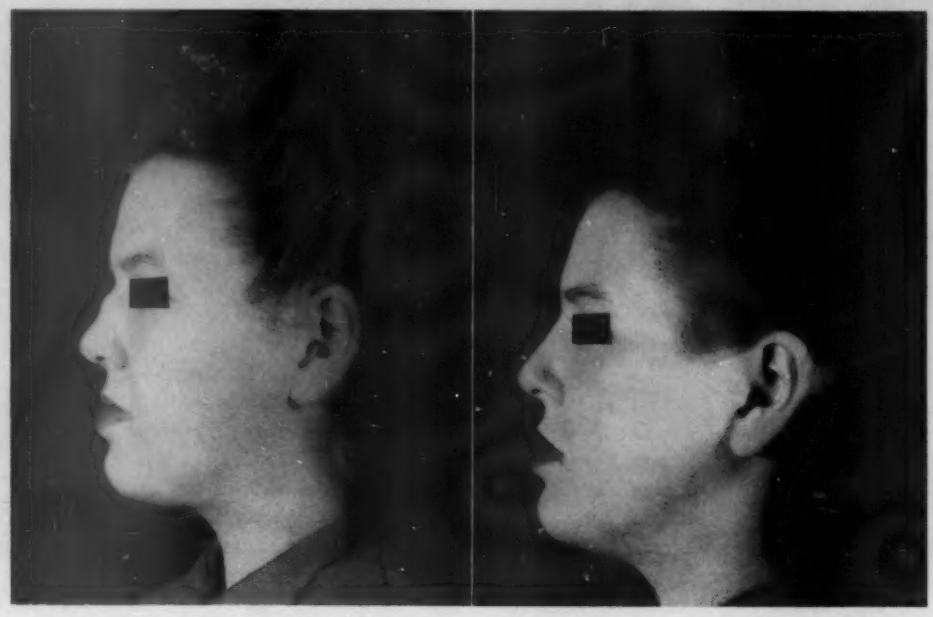

Fig. 5. Nasal deformity secondary to trauma requiring rhinoplastic procedure. Before and after.

It goes without saying that many midfacial fractures with minimal displacement or even moderate displacement, in the aged, require no manipulative procedure. We should like to mention a fact that we have repeatedly observed in fractures involving the antral cavities; fracture and comminution of the fragments are always more extensive than x-ray interpretation per se leads one to believe. We allow for this discrepancy in advising patients as to the need for reduction.

Further discussion of treatment will be divided into three categories: (1) Nasal Injuries; (2) Malar-Maxillary Fractures without and with Involvement of the Alveolar Processes; (3) Zygomatic Arch Fractures.

(1) *Nasal Injuries.*

As one would anticipate, nasal fractures and injuries to the soft tissues and cartilages of the nose are probably the commonest injuries incurred by individuals as a whole. The majority of nasal fractures may be very satisfactorily reduced by simple manipulation of the parts, manually and intranasally with instruments, under local or general anesthesia. This may be carried out on these cases either as inpatients or outpatients, depending upon the various circumstances. Instances of this type are exemplified in Figs. 3, 4, and 6. More complicated fractures require special equipment to immobilize the fragments, thus preventing broadening and depression of the bony nasal complex (Fig. 1). This is rarely necessary, however. The majority of nasal fractures may be handled by the simple procedure of closed reduction. When this cannot be accomplished, then manipulation is delayed and carried out later by open reduction (rhinoplastic operations, Fig. 5). We often have difficulty in controlling the position of the septal cartilage, particularly in the cases of closed reduction, and not infrequently a secondary procedure is necessary to obtain an adequate airway.

Injuries to the nose in children offer special problems. First, soft tissue injuries are common in young children, injuries to the cartilages less so, and actual fractures of the nasal bones are even rarer. However, there is a tendency to minimize these injuries, from the physician's view point, and this may lead to errors in some cases. Adequate examination should be accomplished by one familiar with the nasal anatomy of children, regardless of the difficulties encountered with the very young. Hematomas of the septum and lateral nose should be evacuated.

(2) *Fractures of the Malar (Zygomatic) and Maxillary Bones.*

In view of the position and anatomy of these cheek bones, they will be considered together, as a com-

Fig. 6. Fracture displacement of nasal bones. Reduction under general anaesthesia.

bined fracture of the two often occurs with trauma directed to this region. One frequently encounters an inward and downward displacement of the malar bone, with secondary comminution and displacement of the bones involving the superior (floor of the orbit), anterior, and lateral walls of the antral cavity. (Figs. 7 and 8). In our opinion, this type

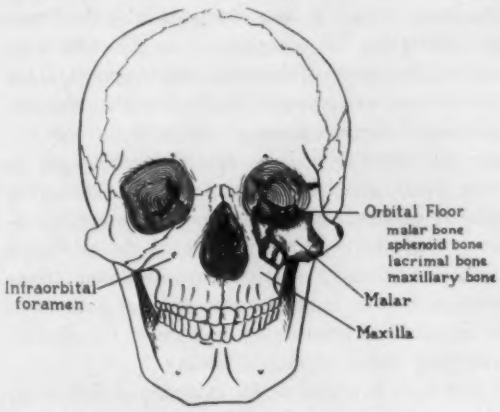

Diagram Illustrating Comminuted Fracture of Left Midfacial Bones

Fig. 7. Malar-maxillary fracture.

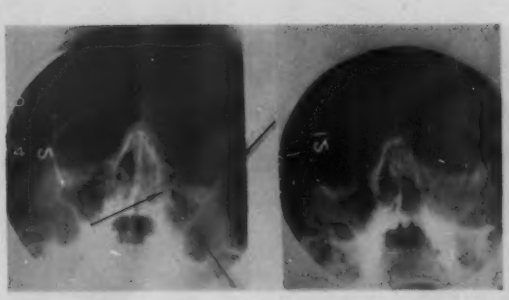

Fig. 8. Malar-maxillary fracture. Reduction by transantral approach. Before and after reformation of antral cavity.

of fracture may be simply and better reduced by a transantral (Caldwell-Luc) approach. The antral cavity is entered through an intraoral incision. Fragments of unattached bone and blood clots are removed from the disorganized cavity, and then by finger and instrument manipulation an effort is made to re-establish the correct anatomical conformity and limits of the cavity. If this is satisfactorily achieved, the fracture displacement must then be reduced. This reformation of the antral cavity, as practiced by the otolaryngologist, is the key to successful reduction of malar-maxillary fractures and to a favorable result without complications. An intra-antral packing of vaseline gauze may or may not be necessary for the purpose of immobilization. The packing, if needed, is usually led out of an intranasal antrostomy opening or, more rarely, through the intraoral incision. It is removed after having been left in situ for 12 to 14 days. Hospitalization during this entire period is not required.

Sometimes after approaching the fracture intraorally, as mentioned above, one finds less fragmentation and displacement of bone than had been anticipated. Reduction then may be carried out by upward and outward pressure exerted from beneath the malar bone at a point near the maxilla, without entering the antral cavity.

In the case of more extensive fractures involving bilateral malar-maxillary injuries, alveolar processes with malalignment of the teeth, old fractures, etc., the reduction procedure becomes more difficult and complex. Measures for obtaining reduction, immobilization, and traction, such as utilizing headcaps, dental splints, various types of skeletal pins, and even direct wiring of the fragments, may be necessary. (Fig. 9). Commonly, the simpler methods suffice; use of the others, though spectacular and impressive, is not often required. It is not our intent in this presentation to discuss these more complicated fractures.

Fig. 9. Fracture right maxilla requiring apparatus for immobilization.

Fig. 10. Fracture of zygomatic arch requiring reduction.

It should be mentioned that in fractures involving the antral cavity where packing is necessary, the establishment of a functioning inferior meatal antrostomy is desirable; and also, subsequently, further treatment to the cavity will minimize the disposition to future sinusitis or complaints referable to the sinuses.

(3) *Zygomatic Arch Fractures.*

Fractures of the zygomatic processes of the malar and temporal bones, composing the arch, are common and are the less difficult of the midfacial fractures to reduce. Fractures with only slight displacement need no treatment. Those with displacement to a degree that will interfere with the function of the mandible, or result in a facial deformity if not corrected, require reduction. (Fig. 10). This procedure is a comparatively easy one, accomplished through an external or intraoral approach. Usually, no mechanism for immobilization is necessary. Old fractures may require external traction, direct wiring of the fragments, etc., in order to obtain a satisfactory result. To repeat, complicated procedures are seldom needed in this type of fracture.

As has been previously mentioned, clinical fibrous union occurs in midfacial fractures in about three weeks, and in a slightly longer interval (four weeks) in a tooth-bearing alveolar process. Therefore, the fractured parts should be in a state of immobilization and/or guarded from trauma for this period of time.

SUMMARY

The management of midfacial fractures of the less severe type has been discussed with the intent of acquainting the nonspecialist in this field with some of the aspects of diagnosis and treatment. This presentation was prompted by the fact that even the reaction of the less serious injuries of the soft tissues will cover or mask an underlying bony one of some significance, thus leading to an incomplete or delayed diagnosis and evaluation of the entire picture. Conversely, severe injuries of the midfacial region involving the soft tissues receive prompt treatment, as it is necessary for this group of patients to be hospitalized immediately because of the obvious emergency nature of their disability.

Emphasis is placed on the existence of deformity, edema, epistaxis, regional dental and cutaneous anaesthesia, new malalignment of teeth, diplopia, hemorrhage into the tissues, and other less common

TABLE 1.

SYMPTOMS AND SIGNS OF MIDFACIAL FRACTURES

Soft Tissue Reaction
Subconjunctival Hemorrhage and Ecchymosis
Diplopia
Deformity
Nasal Obstruction
Epistaxis
Anaesthesia
Malocclusion of Teeth
Subcutaneous Emphysema
Trismus
Discomfort

signs, as evidences of fracture of the midfacial bones.

The permissible time or lapse between the injury and reduction of the fractures, to obtain the best results, is discussed.

Simplicity in the method of correcting the disability is desired over the more involved procedures; however, in the more complicated cases, the latter may be required.

In the vast majority of these injuries, if managed correctly, satisfactory results will be obtained. More difficulty is encountered in handling successfully, and initially, the nasal cartilages than any other parts. Secondary procedures to improve the nasal airway are frequently necessary.

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Child Rearing Principles

A boy needs parents, not push-overs, according to Cal Farley, founder of Boys Ranch at Amarillo, Texas. The principles of rearing a boy are "deceptively simple. Maybe that's why they are so easily forgotten—or not properly learned," Farley said in the January Today's Health, published by the American Medical Association.

Boys Ranch accommodates 220 youngsters and is expanding its facilities for another 500. In 20 years, 1500 boys—most from homes broken by family trouble or death—have lived at the ranch. About 40 per cent of the boys were in some kind of trouble with the law and the others were headed that way. Only 37 boys were failures. The ranch has no special disciplinary staff member. Every adult has authority over a boy while with him.

"This way, the boy learns to respect and obey all adults. Equally important, when a boy steps out of line we correct him immediately. Just keep boys on the beam, supervise and teach them until they finally understand and they'll turn out okay."

Farley listed the five guiding rules for rearing boys at Boys Ranch. They are:

—Teaching the boy to obey. This is the most difficult job and the most important. When a child is allowed to set his own rules he will grow up without any rules at all.

—Living with the boy. By helping him to enjoy his youth, he can be shown how his boyhood years can be used to equip himself for manhood.

—Being specific with the boy. Adults should let him know where they stand—and therefore where he stands. Then he is not confused by doubt, uncertainty, or conflict.

—Giving him responsibility. By making a boy feel part of the working team at the ranch (or at home), he will understand how to be part of the team in whatever sphere of life he enters.

—Loving him. The boy must be shown that love can't be measured by what one gets or gives but in how one conducts himself. It is a kind of mutual respect.

Cancerous and Precancerous Lesions of the Conjunctiva and Cornea

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PRECANCEROUS and cancerous lesions of the conjunctiva are uncommon but should always be considered in treating diseases of these tissues. Clinically, a broad classification can be made into pigmented and non-pigmented groups.

The non-pigmented group is the commonest and the origin of these lesions is from the surface epithelium. The conjunctiva and corneal surface epithelium undergo changes related to the keratosis of the skin, namely epidermidalization and dyskeratosis. In epidermidalization the epithelium of the limbus becomes thickened and may exhibit rete pegs. If an excess of cells undergo surface keratinization, forming a thick horny layer of flattened keratic anuclear plaques, then hyperkeratosis is present. If nuclei are present then parakeratosis is present. These lesions are benign as long as the basal layer remains palisaded and retains the morphologic characteristics and keratin is only produced at the surface and not by the cells of the prickle layer.

In dyskeratosis, keratohyaline is produced in the prickle layer. Mitotic figures may be present and these changes may ultimately lead to malignant invasive characteristics.

The benign papilloma is the most frequently found of any of these lesions and usually occurs in people over forty. Papillomas around the caruncle do occasionally appear in children.

Conjunctival papillomas occur in the upper fornix, at the lid margins, near the puncta or caruncle; they may be single or multiple and occasionally bilateral. Clinically they are recognized by their corrugated or cauliflower like surface and tend to be pedunculated. Occasionally they may be pigmented in dark skinned individuals. At the lid margins they may break down causing the formation of crusts. Papillomas have a predilection for the sites where epithelium undergoes a transition and are then more common at the lid margin and limbus. Limbal papillomas have an entirely different gross appearance from those of the cul de sac. They are elevated tumors with a flat irregular surface which may extend over the cornea. Clinically it may be difficult to differentiate this from an early squamous cell epithelioma. Some classify them as papillary squamous epitheliomas.

Pathologically papillomas have a central core of fibrous tissue which is vascular and is covered by stratified squamous epithelium. When the tumor extends over the cornea, Bowman's membrane may be destroyed. These papillomas rarely become malignant, but under constant irritations they may break down into an epithelioma. They must be differentiated from

1. chronic granulation tissue;
2. polypoid fibromas which are smooth;
3. epithelioma which are usually smoother;
4. limbal dermoids which commonly have hair sticking from them;
5. senile hyperkeratosis;
6. early pterygia.

Treatment is by local excision or lately beta radiation has been employed with satisfactory results.

Case I. Mr. H. R., a white male, age fifty-five, had noticed a small growth on his eye for two years which had gradually enlarged. No other symptoms were elicited. On examination he had a flat cauliflower like growth at the limbus in the temporal triangle of the left eye. This was fixed at the limbus. It was excised locally and a diagnosis of limbal papilloma was made, pathologically. In one area, shown by a white exudate in the picture, early carcinomatous changes were seen. (Fig. I)

LEUKOPLAKIA

Leukoplakia as elsewhere in the body is a true precancerous lesion. Although seen frequently in the mucous membrane of the mouth, it is seen much less commonly on the conjunctiva and cornea. The lesion is a focal area of epithelial hyperplasia and keratinization and is usually seen at the limbus temporally, but may also appear on the bulbar conjunctiva. It may vary in size, but is usually seen as a slightly elevated white plaque which may be

From the Department of Ophthalmology, Gill Memorial Eye, Ear, Nose and Throat Hospital.
Presented at the meeting of the Virginia Society of Ophthalmology and Otolaryngology, May 2-3, 1958.

Fig. I

easily overlooked or mistaken for pinguecula. Leukoplakia is white and superficial whereas a pinguecula is yellow and subepithelial. Pathologically the tumor consists of a mass of thickened and keratinized epithelium without connective tissue core. This lesion is a forerunner of squamous cell epithelioma. Any change in size or vascularity may indicate malignant change.

Treatment of choice is complete excision, which is usually accomplished with very little difficulty. Differential diagnosis:

1. pterygiums and pingueculae
2. malignant epitheliomas
3. Bowen's disease

Case II. This seventy-three year old white male had noticed a "growth" on his left eye for approximately one year. This growth had been spreading fairly rapidly. When first seen the patient had a white raised lesion at the limbus at approximately three o'clock; the lesion measured 4 mm. by 5 mm. A diagnosis of epithelioma was made clinically.

Local excision was carried out, the tumor was excised with a good layer of corneal stroma. The postoperative course was uneventful and no recurrence has been noted to date. Pathological examination revealed the lesion to be leukoplakia. (Fig. II)

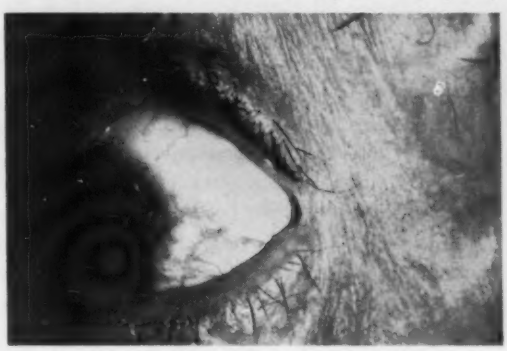

Fig. II

BOWEN'S DISEASE

Bowen's disease is infrequently seen and represents one of the earliest cancerous changes in ocular tissues. The exact classification of this condition is still in dispute. Some believe it to be a form of basal or squamous cell carcinoma in situ, others regard it as a precancerous lesion with malignant possibilities such as is seen in precancerous melanosis and therefore it falls into the category of Paget's disease of the breast.

McGavic reported this disease as a syndrome involving both cornea and conjuctiva at the limbus.

Bowen's disease is an intra-epithelial epithelioma involving either the cornea, conjunctiva, or skin of the lids. In ophthalmology, it is encountered most frequently on the cornea and has the appearance of a diffuse, slightly elevated granulomatous to gelatinous-looking lesion. Some degree of vascularization is always present. This disease arises in the epithelium and remains confined without breaking through the basal layer of epithelium for many years. It may eventually break through the surface epithelium and, rarely, may even metastasize. The lesion is commonly associated with some type of chronic inflammation which may keep the neoplasm masked for some time. There is usually some degree of inflammation surrounding the growth. In McGavic's original series, three of his five cases had a preceding history of injury or inflammation. This condition is almost always limited to those in the age group of fifty years or older. (Fig. III)

Fig. III

Case III. Mrs. R. R., a Negress, aged sixty-four years of age, had noticed a growth on her eye for the last two years. This had begun at the inferior margin of her cornea and had spread slowly over the surface of the cornea until it interfered with her vision. At this time, she sought medical treatment and was placed on some type of ophthalmic oint-

ment. This did not improve the condition and she was referred to this hospital for further treatment.

A history was obtained of having burning and itching eyes for many years. The patient had undergone surgery for the removal of a "tumor on her stomach," but further information concerning this was unobtainable. She also gave a familial history of a brother having had a condition similar to hers for which his eye was removed but we were unable to trace this further.

When first seen on August 16, 1955, a large gelatinous growth was present on the left eye. It involved the bulbar conjunctiva and approximately one-fourth of the lower temporal part of the cornea. A marked inflammatory reaction surrounded the lesion. The remaining cornea was thickened and edematous. Profuse lacrimation was present.

The vision in this eye was limited to light perception only, vision in the right eye uncorrected was 20/60. Both pupils reacted to light and accommodation. Tension in both eyes was 22 mm. of mercury by Schiotz's tonometer.

The right eye exhibited thickening of the bulbar conjunctiva due to chronic inflammation but was otherwise unremarkable. The slit lamp examination of the left eye revealed the thick gelatinous nature of the growth, as well as its marked vascularity. A tyndall effect was seen in the anterior chamber.

Cultures and smears were taken but showed only a few staphylococcus aureus. X-ray studies of the orbit were normal.

The remainder of the physical examination was negative. It was felt at this time that this lesion represented a neoplasm of the cornea and for this reason a wide enucleation was recommended.

The patient was hospitalized and a wide enucleation was performed, removing all of the bulbar conjunctiva and some of the palpebral conjunctiva. The postoperative course was unremarkable and to date no recurrence has been noted.

The pathologic report of the tissue submitted was that of intra-epithelial epithelioma or Bowen's disease.

These lesions are made up of epithelial cells showing great variation in size, shape, and staining characteristics. Mitoses are numerous and there may be many giant cells. The basement membrane by definition is not invaded but an inflammatory layer of plasma cells and leukocytes may be present beneath this layer.

Complete surgical excision is the procedure of choice. X-ray and Beta radiation produces variable results.

EPITHELIOMA

Squamous cell epithelioma of the conjunctiva is much (at least ten times) more common than basal cell epithelioma. Epitheliomas or epidermoid carcinomas are most frequently seen at the limbus but they do occur at the caruncle and in the bulbar and palpebral conjunctiva. A limbal epithelioma may invade the sclera and much more rarely the cornea. The tumor may even extend through the sclera and show intraocular invasion. Chronic irritation is a precipitating factor, consequently squamous epitheliomas and leukoplakias are usually located in the palpebral aperture and most often on the temporal side in the limbal region. Limbal epitheliomas begin as small greyish white opaque nodules that can easily be confused with senile hyperkeratosis. The growth is usually slow and may change little for years. The tumors are pinkish gray in color with a scattering of small reddish yellow spots over the surface. Dilated vessels course toward and away from the lesion. Under slit lamp magnification the general contour is smoothly lobular with small vessels forming a characteristic bud at the apex of each lobule. Areas of erosion may be present. The lesion does not invade the stroma of the cornea until very late.

Epithelioma must be differentiated from

1. benign papillomas
2. Bowen's disease
3. leukoplakia

The pathological picture shows typical epithelial cell nests which are surrounded by prickle and polygonal cells and these in turn by cuboidal and cylindrical cells. The nuclei are varied in size and form. Considerable inflammatory cells are usually present. Ash and Wilder reported forty eight tumors of the limbus. Of these thirty some were of the squamous cell epidermoid type of carcinomas, eight were papillary carcinomas and one was a basal cell type.

These lesions are of relatively low grade malignancy and can be treated conservatively. If the lesion is well localized surgical excision may be used. Larger lesions require more radical surgical excision.

Case IV. This ninety year old white male had noticed a growth on his left eye for approximately six months. The lesion probably dated further back than this. On examination vision in the right eye was 20/200 and in the left eye was 20/200. Pupils

were regular and reacted to light. Tension was normal in both eyes. A large white to pink tumor was present on the left eye. This was polypoid, smooth, and involved two-fifths of the cornea and appeared to originate at the limbus at approximately six to nine o'clock. Senile cataract was present in both eyes.

A diagnosis of epithelioma of the cornea was made. Local excision was carried out and a good layer of corneal stroma was excised along with the tumor. No recurrence has been noted to date.

Pathological sections showed the lesion to be covered by squamous epithelium. The entire mass showed a number of epithelial cords transversing through a myomatous stroma. The cords anastomosed to some degree. The cells in these cords did not stain as well as true epithelium and their nuclei varied somewhat. Occasional mitotic figures were seen. The tumor showed invasive tendencies. The final diagnosis was squamous cell carcinoma Grade I. (Fig. IV)

Fig. IV

The next main group of lesions are usually pigmented. Although pigment is present in all these lesions the pigment content is not characteristic of the type of cell and does not indicate the degree of malignancy. These pigment containing tumor cells are found in the same area.

The exact origin of the cells responsible for the pigmented group of lesions is still in dispute. Some believe them to be of neuroectodermal origin, cells which have migrated from the neural crest embryologically. These are often thought to be direct derivations of the Schwann cells. The old theory of mesodermal origin has been almost discarded. Whatever their origin these pigmented lesions which include the nevus, melanoma, and melanosis may be classified into distinct groups. These include the common nevus which consists of nests and strands of cells with irregular nuclei. Pigment is variable. No involvement of the dermis is seen. The next group and the potentially malignant group are the lesions with activity in the basal layers of the epidermis and involvement of the dermis in the so called junctional nevus. The third type is the dermal which has isolated clumps of nevus cells in the dermis but is separated from the epithelium by connective tissue. The junctional changes may lead to malignant melanoma and malignant melanosis. The dermal lesion includes the blue nevus and melanosis oculi. Most conjunctival nevi are junctional in nature.

1. Junctional
   a. malignant melanosis
   b. premalignant melanosis
   c. malignant melanoma
2. Mixed
3. Dermal melanosis
   a. blue nevus malignant
   b. dermal nevus

NEVUS

Nevi very rarely become malignant. They may be single or multiple. They are usually located in the scleral triangles at or near the limbus or the caruncle.

The tumor is usually elevated with a roughened surface and may have varying degrees of pigmentation. Reese, in reviewing the literature, found only two cases of malignancy developing from pre-existing conjunctival nevi. Hairs in the nevus is felt to be evidence of the benign nature of the tumor.

Nevi must be differentiated from

1. malignant melanosis—diffuse, granular, more yellowish
2. malignant melanoma
3. pinguecula

These lesions consist essentially of groups of large flat polygonal nevus cells which may or may not contain pigment.

Excision is the treatment of choice.

Case V. This forty year old female Negro had noticed a black spot in the inner corner of her left eye for many years. She thought that it had been getting larger. Vision in the right eye was 20/20 and in the left eye was 20/20. Tension was normal in both eyes. A slightly raised deeply pigmenfed lesion measuring 2 mm. by 2 mm. was present at the inner caruncle of the left eye. No inflammatory reaction was present around it and no increase in vascularity was noted. A diagnosis of benign nevus was made. Local excision was carried out.

Pathological section showed the lesion to consist of groups of large flat pigment polygonal nevus cells. Final diagnosis is benign pigmented nevus. (Fig. V)

Fig. V

PRECANCEROUS AND CANCEROUS MELANOSIS

Melanosis of the conjuctivae appears usually in the fifth and sixth decade. Precancerous melanosis manifests itself as a diffuse nonelevated pigmentation with a granular appearance. The lesion is diffuse and the pigment is rather more yellowish than brown. Malignant areas may appear at any site and multiple sites may become malignant simultaneously. The average length of time between its appearance and its subsequent malignant change is from five to ten years. Increase in pigmentation and signs of inflammation may indicate malignant change. Occasionally the lesion may regress spontaneously.

Differential diagnosis:

1. nevi—circumscribed, congenital tumors
2. melanosis—more circumscribed and vascular
3. melanosisoculi—increased pigmentation of all ocular tissue
4. ochronosis

In these lesions the basal cells of the conjunctival epithelium increase in number, become pigmented, swollen and hydropic. The basal layer proliferates and in others it is segregated into clumps. As cancerous changes take place, the cells begin to show invasive tendencies, mitotic figures are numerous and a marked inflammatory reaction occurs.

Sarcomas are really malignant melanosis.

Malignant melanomas are most commonly found in the fifth, sixth, and seventh decades although they may occur earlier. The tumors may involve any portion of the bulbar or palpebral conjunctivae. In the fornix they are oval or spherical and smooth. In the scleral triangle the tumor is flat with roughened surface and irregular edges. The pigment is usually brown or black.

Growth varies, it may be rapid or the mass may even be dormant for years. Sometimes the growth will outstrip its blood supply and necrosis results. Extension into the orbital tissues or to the globe along the perforating vessels or metastasis in the proximal glands, liver, or lung is the course. These extensions may be years in developing.

Melanin is not usually found in the urine. but when present is diagnostic of a melanoma. If still present after the removal of the tumor, metastasis should be looked for.

Differential diagnosis:

1. nevi
2. malignant cancerous melanosis

Callender grouped malignant melanomas as follows: (1) Spindle Cell A, spindle-shaped cells with narrow oval nucleus and indistinguishable or ill defined nucleolus. (2) Spindle Cell B, spindle-shaped cells, in which the nucleus is also oval, but which has a prominent nucleolus and is generally more robust than in Spindle Cell A. (3) Fascicular, a palisaded arrangement of the cells, which are usually spindle cell type B. (4) Necrotic, too necrotic to classify. (5) Mixed cell tumors, a combination of two or more types, with the exceptions of Spindle Cell A and B type tumors (which are classed as Spindle Cell B), and spindle-cell type B in palisaded arrangement (which are classed as Fascicular). (6) Epithelioid, a round or polygonal cell, usually rather large, but with considerable variation in size and shape. The nucleus is large, round and nucleolated. The cytoplasm is abundant and markedly acidophilic. The least malignant type is the Spindle cell A, and the most malignant is epithelioid. When cases are classified according to argyrophil fibers, as demonstrated by Wilder's reticulin stain, the malignancy is inversely proportional to the fiber content.

X-ray therapy is valueless and surgical excision more radical than otherwise is indicated as the primary procedure. A wide margin of the conjunctiva should be removed with the tumor. If the tumor turns out to be a Spindle Cell A or B with a high reticulum count it is justifiable to do no further surgery, but to watch the patient carefully. If the tumor proves to be a mixed cell type, an epithelial or a necrotic type, exenteration of the orbit should be done immediately.

MELANOSIS OCULI

Originally believed to be mesodermal in origin,

melanosis oculi is probably neuroectodermal in origin as well as the other pigmented lesions. If it becomes malignant the neoplastic cells are indistinguishable from other melanomas. It is manifested by pigmentation of the skin of the lids and the ocular tissues especially around the limbal vessels. It may involve the uveal tract and optic nerve. It is potentially malignant and must be watched very carefully.

Two broad groups of precancerous and cancerous lesions of the conjunctiva and cornea have been discussed. The first group of epithelial origin is relatively benign and can be treated conservatively. The second group is derived from neural ectoderm and melanocytes and is very malignant and must be treated with more radical methods.

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New Blood Test in Arthritis.

A relatively new blood test for rheumatoid arthritis has been shown to be about 85 per cent accurate by two new studies. The test involves adding particles of specially treated bentonite, an aluminum salt, to blood serum. If the patient has rheumatoid arthritis, the bentonite particles clump in a particular manner. It is similar to other blood tests for arthritis, which use sheep blood or latex as the clumping material. However, the bentonite test is simpler and speedier than the other tests, according to Drs. Kurt J. Bloch and Joseph J. Bunim of the National Institute of Arthritis and Metabolic Diseases, Bethesda, Md.

Their study, along with one by five Philadelphia researchers, appears in the January 24 Journal of the American Medical Association.

The two studies confirm earlier suggestions that the bentonite test might be useful in the specific diagnosis of rheumatoid arthritis, which has been termed the "nation's No. 1 crippler." A virulent form of arthritis, the disease is an inflammation of the joints. Because of its similarity to other forms of arthritis, rheumatoid arthritis is difficult to diagnose in the early stages when treatment is most effective.

The blood tests offer a means of early diagnosis. At present only a few laboratories perform them because of their complexity. However, the Philadelphia researchers believe the bentonite test is a step toward an accurate, simple, inexpensive, and dependable laboratory aid that could be used in many laboratories.

Drs. Bloch and Bunim studied 429 patients in whom rheumatoid arthritis or some other disease was definitely diagnosed by clinical examination. The blood test finding was positive in 97 (85 per cent) of 114 patients with rheumatoid arthritis. Only 3 per cent of the whole group reacted to the test when they did not have rheumatoid arthritis.

The Philadelphia researchers, who studied a total of 160 patients' serums, found the test to be accurate in 83 per cent of 48 patients with clinically confirmed rheumatoid arthritis. Their results were comparable to those in previously reported blood studies with more difficult and expensive procedures.

The Philadelphia research team was headed by Dr. Russell A. DelToro, of the department of medicine, section of rheumatology, Benjamin Franklin Clinic, and the Pennsylvania Hospital.

Newer Liver Function Studies

Serum Cholinesterase And Transaminase

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Richmond, Virginia

AN ATTEMPT to reduce the plethora of liver function tests has long been the goal of those interested in liver diseases. Wroblewski and Ladue and then others have commented on the use of the serum glutamic oxalacetic transaminase activity (SGO-T) as a diagnostic and prognostic test in liver disease.[1,2,3,4,5] It has been known for some time that the enzyme transaminase is present in large quantities in such body tissues as heart muscle, skeletal muscle, liver, brain, and kidney. In the presence of damage to any of these tissues, the serum level of this substance is raised. Following the devising of a method by Karman[6] to measure the activity of transaminase in the serum, many reports have appeared on the usefulness of this test.[7,8] It has proven particularly useful in diagnosing and in following the course of liver disease and myocardial infarction. Other writers have found values for transaminase to be elevated in the presence of certain neuromuscular diseases and following the use of opiates.[9,10,11]

Other enzymes have been tested in similar conditions, such as the serum glutamic pyruvic transaminase, which is said to be more specific in liver disease, especially hepatitis. It has been shown that this is true of hepatitis. The SGO-T, however, is equally and perhaps more specific in cirrhosis and other forms of liver injury[12] and from a practical standpoint has a wider range of usefulness for the general laboratory. The SGP-T probably has its greatest value as a confirmatory test, particularly in hepatitis.

The serum cholinesterase, sometimes called a pseudo-cholinesterase since it hydrolizes many esters besides acetylcholine, has been reported to be of value in liver disease in a number of papers including the excellent review of Vorhaus and Kark.[13] This substance which is apparently a mucoprotein of high molecular weight, is produced in the liver. Cholinesterase serum levels are thus depressed in liver injury. Determination of serum cholinesterase and transaminase appeared to offer an advantage over many of the older and more cumbersome procedures. The purpose of this article is to report our results with these tests.

From the Gastrointestinal Section of the Medical Service, McGuire Veterans Administration Hospital, Richmond.

Presented at the Annual Meeting of The Medical Society of Virginia, Richmond, October 12-14, 1958.

PLANS OF STUDY

All patients admitted to the Gastrointestinal Sectional of McGuire Hospital with a suspected or proven liver disease were studied. The conventional liver function test profile including serum bilirubin, prothrombin activity, alkaline phosphatase, thymol turbidity, cholesterol and esters, and total protein with AG ratio were done on most patients. A BSP test was done in the absence of jaundice. The SGO-T determinations were done by the spectrophotometric method of Karman.[6] (Fig. 1) This measures

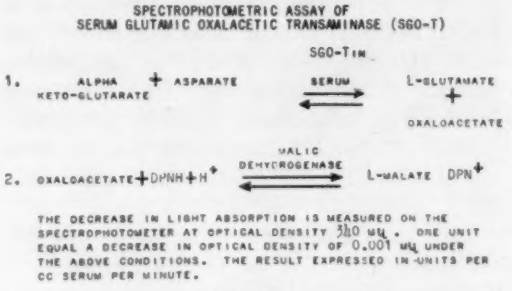
SPECTROPHOTOMETRIC ASSAY OF
SERUM GLUTAMIC OXALACETIC TRANSAMINASE (SGO-T)
SGO-T IN SERUM
1. ALPHA KETO-GLUTARATE + ASPARATE
L-GLUTAMATE + OXALOACETATE
MALIC DEHYDROGENASE
2. OXALOACETATE + DPNH + H+
L-MALATE DPN+
THE DECREASE IN LIGHT ABSORPTION IS MEASURED ON THE SPECTROPHOTOMETER AT OPTICAL DENSITY 340 mμ. ONE UNIT EQUAL A DECREASE IN OPTICAL DENSITY OF 0.001 mμ UNDER THE ABOVE CONDITIONS. THE RESULT EXPRESSED IN UNITS PER CC SERUM PER MINUTE.

Fig. 1.

the decrease in optical density resulting from the oxidation of reduced diphosphopyridine nucleotide when serum is added to excesses of aspartic acid and alpha-keto-glutaric acid buffered at an optimal pH in the presence of reduced disphosphopyridine nucleotide and malic dehydrogenase. Cholinesterase determinations were performed by the pH method of Michel and the results expressed in delta pH units.[14] (Fig. 2) When serum containing cholinesterase and acetylcholine bromide are added to a buffer at pH 8 at 25°C. for one hour, acetic acid is formed which causes a drop in pH values from pH 8. The difference in pH, using tables provided by Michel (which allow for certain corrections) gives the results in

MICHEL'S METHOD FOR SERUM CHOLINESTERASE

SERUM CHOLINESTERASE plus ACETYLCHOLINE BROMIDE —Buffer *→ ACETIC ACID

METHOD MEASURES: Decrease in pH in one hour (delta pH/hr.) from pH 8

*Sodium diethylbarbiturate, KH_2PO_4, NaCl, $MgSO_4$, and dist. H_2O

Fig. 2.

delta pH units per hour (or decrease in pH per hour).

Controls consisting of 57 transaminase and 74 cholinesterase determinations were performed on normal hospital personnel and patients hospitalized for uncomplicated peptic ulcer and functional gastrointestinal complaints. Previous studies have shown values for both cholinesterase and transaminase to be normal in this type of patient with a normal range for transaminase from 5 to 40 units, and a normal range from .45 to 1.45 delta pH units for cholinesterase. The SGO-T determinations were generally done at 2-day intervals in acute cases and weekly in static ones. Cholinesterases were done at weekly intervals, as it has been shown that these values do not change rapidly. This may be because the life span of the cholinesterase molecule is approximately 28 days. Carrying out this study for a period of over one year gave us the opportunity to observe a number of patients for a period of several months. Many were seen on repeated admissions in varying stages of liver compensation.

VIRAL HEPATITIS

Fourteen patients with viral hepatitis were studied.

Seven were classified as infectious and seven as serum hepatitis, on the basis of their histories and incubation periods. There was one death in this group. This occurred in a previously debilitated man who died of a chronic serum hepatitis following a blood transfusion. (Fig. 3) As noted in the Table 1, the highest SGO-T values varied between 72 and 1150 units with a mean of 407. The lowest cholinesterase values varied between 0.03 and .99 units with a mean of .71. In general, the height of the SGO-T paralleled the acuteness of the illness and its fall toward normal correlated well with clinical improvement. Cholinesterase fell only moderately in this group of patients and frequently did not reach abnormally low levels. A fall to very low levels indicated a more severe case with slow recovery.

Vorhaus and Kark found the serum cholinesterase was depressed in acute liver diseases such as hepatitis, but more so in chronic forms.[13] Kaufman using another method also found low values in hepatitis, and felt the test was an especially valuable one in differentiating obstructive from hepatocellular jaundice.[15] Molander also found values were depressed in acute liver disease and rose to normal with convalescence.[5] LaMotta and his co-workers found a close parallel between the clinical course and the cholinesterase level.[16] As noted in our cases, there was also a close correlation between the percentage of cholesterol esters and the values for cholinesterase. In our study, the cholinesterase correlated well with the severity of the hepatitis. In most patients, it did not drop to abnormally low levels, but where it did, recovery was prolonged.

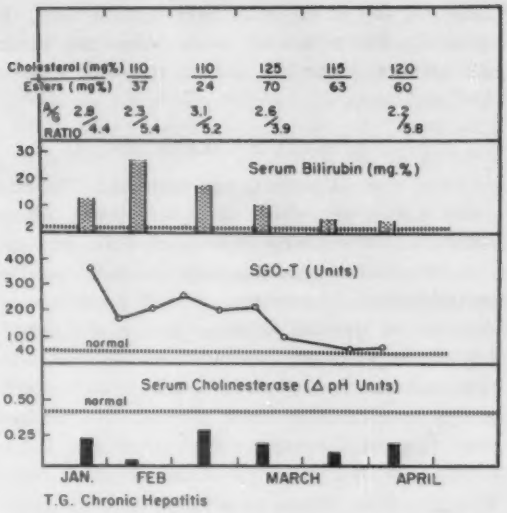

Fig. 3. T.G. with serum hepatitis and a long history of malnutrition ran abnormally low levels of cholinesterase and an elevated SGO-T throughout his hospital stay. Although his SGO-T dropped toward normal at the time of his death, the cholinesterase never rose.

The value of the SGO-T in acute hepatitis has been noted frequently. It is often elevated before any other liver function test. In one study, at an institution for mentally retarded children, the SGO-T showed elevation up to four weeks prior to the onset of clinical hepatitis.[2] It has been found to parallel more closely the clinical course of the illness than any of the other tests commonly used. We found it of great value in the differential diagnosis of jaundice. In decompensated cirrhosis and in obstruction, the figures for transaminase rarely rose above 150 units unless hepatitis was superimposed. In hepatitis, however, the figures were considerably higher in almost all instances. A fall in the SGO-T more closely correlated with the patient's clinical course

than did any of the other liver function tests. It generally fell to normal levels before the serum bilirubin and coincided with the return of appetite and well being.

LAENNEC'S CIRRHOSIS

There were 65 patients with cirrhosis. The majority of these were alcoholics to some degree. Many were admitted following an acute alcoholic debauch. Some were in coma and a number had had a massive gastrointestinal hemorrhage. Several patients were observed on repeated occasions and in and out of hepatic compensation. It was difficult to divide them into arbitrary compensated and decompensated groups since this may be an extremely fine distinction. In general, however, those patients with frank icterus (usually over 2 mg.% serum bilirubin), those with present or impending hepatic coma, and those with ascites were classified as decompensated. Those with ascites were included with reservations, however, since some of these maintained their ascitic state for months and years with little evidence of worsening of their condition. As has been noted by others, the patients with the most active disease ran the highest levels of SGO-T and those with the most severe disease ran the lowest levels of cholinesterase. Table 1 shows the highest SGO-T and lowest cholinesterase levels obtained in compensated cirrhosis, decompensated cirrhosis with ascites and decompensated cirrhosis without ascites. The high SGO-T values in the compensated group frequently were attributed to the alcoholic condition in which the patient entered the hospital. It has been shown in experimental animals and man that alcohol per se will cause elevation of the SGO-T.[17,18] We also noted this on occasion in our alcoholic patients without cirrhosis. Elevations were transient and rapidly fell toward normal. In this same group there was a wide range of cholinesterase values and in this group the BSP was often of more value in diagnosis than either of the other tests. The patients who were decompensated without ascites were frequently those who had a massive GI hemorrhage or those with jaundice. It was here that the cholinesterase was of particular value in differentiating jaundice due to hepatitis from that due to cirrhosis. In patients with ascites, the cholinesterase reached it lowest values and it was here that the close parallel between serum cholinesterase and serum and albumin was most often noted. This parallel has been noted previously and we found also a direct linear relationship between the two in our patients. The serum cholinesterase was a much more delicate and accurate test than the serum albumin, however, and frequently mirrored damage not reflected by the latter.

Improvement in the cirrhotic state was followed closely by a rise in cholinesterase toward normal levels. Failures to do this was usually associated with poor prognosis. Levels below 0.10 delta pH units were not often associated with recovery. The transaminase was not generally as useful in cirrhosis as serum cholinesterase. Its levels, which were not usually marked, rapidly fell toward normal and remained so even in the presence of severe and continuing decompensation.

TABLE 1

		Highest SGO-T (Units)			Lowest Cholinesterase (delta pH Units)		
Diagnosis	Number	High	Mean	Low	High	Mean	Low
Hepatitis	14	1150	407	70	.99	.71	.03
Cirrhosis:	65						
1. Compensated	30	108	40	9	1.15	.60	.23
2. Decompensated							
a. Ascites	19	238	69	6	1.00	.13	.00
b. No Ascites	16	295	92	38	.73	.37	.04

Normal Ranges: SGO-T 5-40 Cholinesterase 0.45-1.41

NEOPLASTIC DISEASE OF THE LIVER

There were 8 patients in this series with neoplastic invasion of the liver. One had a primary hepatoma superimposed on an old cirrhosis with ascites of many years duration. The other 7 had metastatic carcinoma from varied primary sites. Fifty-five SGO-T and cholinesterase determinations were done, the former ranging from 14 to 262 with a mean of 42, and the latter from .12 to .84 with a mean of .39. Neither test proved as consistently valuable as the alkaline phosphatase. Thirty-one phosphatases

were done in this group of patients with figures varying between 2.8 and 47 Bodansky units with a mean of 19.1, a much more diagnostic figure. Low figures for cholinesterase and high figures for SGO-T have been mentioned by others as occurring frequently in metastatic tumors of the liver.[19] In our series they did not follow any consistent pattern. While these tests were sometimes useful in determining the presence of liver tumor, they were not nearly so suggestive of neoplasm in our patients as the alkaline phosphatase.

MISCELLANEOUS DISEASES

Arsenic Poisoning: Arsenic is a well known hepatotoxin, especially in the forms in which it usually appears in commercial sprays and rat poisons. Two patients were seen with arsenic poisoning. Both of these had mild to moderate rises in their SGO-T levels, one to 108 and the other to 102 units. Both fell to normal levels within 7 to 10 days. A cholinesterase obtained in one patient was normal. This was done early, however, probably before the cholinesterase had had a chance to fall, and was not repeated. BSP was the only other liver function abnormality seen. The usual pancytopenia, neuritis, and other evidences of poisoning were present. Both patients recovered.

Brucellosis: One patient with fever, hepatosplenomegaly, and culture-proven brucellosis was studied. The cholinesterase fell and the transaminase rose, both to abnormal levels. All values returned to normal with clinical improvement on antibiotic therapy.

Amyloidosis: A case of primary amyloidosis of the liver was studied with cholinesterase and transaminase both normal. The only abnormal liver function test was the BSP retention of 25%. This was in keeping with the findings of others who have noted that the liver function tests other than BSP are usually unremarkable in primary amyloidosis involving the liver.[20]

Hemochromatosis: In one case of primary hemochromatosis, the cholinesterase remained between .21 and .26 for two months, rising to .68 following clinical improvement after phlebotomies. The SGO-T varied throughout the hospital stay between 23 and 43 units. Other liver function tests indicated chronic liver damage. All tests improved following treatment but none so strikingly as the cholinesterase.

Dubin-Johnson Syndrome: As could be expected in this relatively benign condition, values were entirely normal. The only abnormality in this patient was the direct bilirubin of 3.5 mg.%.

SUMMARY

1. The combined use of serum cholinesterase and serum glutamic oxalacetic transaminase in hepatitis, cirrhosis, metastatic neoplasm and other miscellaneous liver conditions was studied for a period of more than one year in approximately 100 patients.

2. The transaminase reflected most accurately acute liver damage and especially the presence of necrosis. Cholinesterase reflected best the degree of liver function impairment. Both tended to show prognosis in their failure to change from abnormal values and in the rapidity of their return toward normal values.

3. In viral hepatitis the SGO-T was particularly valuable, being the first test to become abnormal and it more accurately reflected clinical improvement than other tests. Cholinesterase was usually not greatly diminished unless the case was severe.

4. In cirrhosis the SGO-T was usually only mildly to moderately elevated. Here, the cholinesterase was frequently the most sensitive guide to prognosis. Its failure to rise indicated a downhill course.

5. In neoplastic diseases of the liver the transaminase was frequently elevated and the cholinesterase depressed. Neither of these was as reliable as alkaline phosphatase which was almost universally elevated to abnormal levels.

6. In a group of miscellaneous, toxic, infectious and metabolic diseases the SGO-T measured the acuteness of damage to the cells, and the cholinesterase the amount of damage and prognosis.

7. This combination of tests is a valuable one in the diagnosis and prognosis of liver disease.

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Library Exhibit On Medical Writing

An exhibit on the writing of medical articles is displayed in the University of Virginia Medical Library from February 3d through March 31st.

This "how-to-do-it" exhibit collects books on the various phases of writing articles in this specialized field. One part is devoted to guides for writing medical articles. Articles which are acceptable to editors as well as articles which are valuable to the profession are stressed. Here examples of articles before and after revision are given. Books on statistics and the application of statistics to the biological sciences are shown together with an article on the use of computers.

Another part of the exhibit deals with the inclusion of charts, tables, and illustrations in medical articles. The part which the Medical Library and the Medical Librarian contribute to medical writing is also included.

A table of books on the subject is placed nearby for borrowing and browsing. It includes hints on the securing of reprints, on bibliography making, on indexing books, and on the proof-reading of articles, to mention a few diverse aspects. Suggestions for writing special forms such as abstracts, case reports, book reviews, and papers for oral presentation are also included.

The Physician's Responsibility in Childhood Accident Prevention

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ONE OF MY FRIENDS who heard I was speaking asked me the topic of my address. When I replied "Childhood Accident Prevention", he paused a moment and then said, "I can't think of a more vitally important subject, or a more deadly dull one to discuss."

I think it's fair to ask ourselves whether anything new and vital can be said about a subject as old, as broad, as obvious, and as thoroughly discussed as childhood accident prevention. Most of us who deal with children are aware that accidents are the leading cause of death and crippling from the age of one through adolescence. We very definitely do not want our little patients hurt, burned, or poisoned. When these things occur through the carelessness or ignorance of parents, we are distressed and disturbed and often do not hesitate to tell the parents what they did that was wrong.

But what do we do to help them do right the next time, or to prevent the accident from occurring in the first place? Do we have a steady and continuing program of safety education as part of the routine of our individual practices and of our medical societies? Are we really doing all in our power to increase public safety consciousness, and to give verbal advice and literature about safety planning?

I think our attitude is usually a mixture of complacency and fatalism. We are complacent because we are in favor of safety. May I point out that being "for" safety is just as futile as being "against" sin—neither attitude has any value unless you work like the devil to support it. The road to the emergency room, like the road to another well known place of suffering, is paved with good intentions—the good intentions of parents who didn't really believe that Johnny would get the furniture polish out of the kitchen cabinet; of doctors who know that furniture polish should be kept locked away, but who never said so; and of manufacturers who never intended for Johnny to drink the polish and so did not print a warning label on the bottle.

Presented at the Annual Meeting of The Medical Society of Virginia, October 12-14, 1958, in Richmond.

Our good intentions do not justify an attitude of complacency. Do the facts justify an attitude of fatalism? Certainly many accidents are going to occur no matter what we do. Despite all our efforts, there will be plenty of evidence of carelessness and ignorance about basic safety principles. Should we, therefore, give up the whole project as useless?

Let me answer the question this way. About 11,000 children between the ages of one and fifteen are killed each year in accidents. Suppose that, despite an intensive campaign by doctors and medical societies, we could reduce that mortality by only 5%. Five per cent would certainly be a discouraging mortality reduction in any other field, but look what we would have done: prevented *550* childhood deaths each year, and saved over five thousand lives in just 10 years.

You are all well aware of the remarkable results that have been obtained over the past fifty years by industrial safety campaigns. There has been a steady decline in deaths from automobile accidents per million miles traveled, despite the terrible loss of 40,000 lives annually from this cause. Home and personal safety planning have lagged far behind industrial and highway safety. A very intensive, continuing campaign by many people and organizations will be required before we begin to bridge the gap.

After we have overcome our own attitudes of complacency and fatalism about childhood safety, what is it that we wish to teach to parents? First we want to work on their attitudes, to get them to accept the planning of a safe environment for their children as a vital responsibility. We don't want an attitude of neurotic overconcern, where the parents are constantly hovering over the child to keep him from hurting himself. Quite the contrary, we want the environment so safe that the parents can relax and be reasonably sure that he won't be hurt.

This involves the techniques of compartmentation and restraint, plus removal of hazards. "Compartmentation" as an entity in child care was first developed and described by Dr. E. Robbins Kimball of Evanston, Illinois. The term simply describes the

technique of placing the infant in a restricted—and safe—area for certain periods of the day, and of gradually changing and increasing the restricted area until the child has the knowledge and judgment to be unrestricted.

Compartmentation begins with the play-pen. The infant becomes accustomed to being placed in the pen at fairly regular hours each day, and he spends a large part of his waking hours there. It is important that this become completely routine long before he learns to crawl. The play-pen is useful for at least the first year, and often up to two years. The transition is made gradually, not to the living room floor, but to a gated room. The expansion gate properly used is one of the best tools available for keeping children safe and happy, and also for saving wear and tear on mothers. When the child is used to compartmentation, the mother should be able to put him in the room well stocked with toys, close the gate, and go take a nap. Dr. Kimball rightly describes this as "the acid test" of compartmentation.

As the child emerges from the gated room, it is important that all new areas open to him have been checked for safety hazards-exposed electrical fixtures, heavy objects that can be pulled down, cabinets containing dangerous fluids or medicines. Floor furnaces, ovens, and open heaters are potent sources of danger. Compartmentation should prevent children from coming near them until they are old enough to really understand the dangers involved. It's rather superfluous to advise a mother to keep the pot handles turned away from the front of the stove—if the child can reach the handle, he can touch the burner itself. When Junior is allowed out of the gated room, mother should make her last stand in the kitchen. A gate should go up across the kitchen door, or across the entire kitchen-dining room area. In addition to being a safety device, this is a fine technique for preventing the "six o'clock screaming meemies"—mother will gladly let the children romp over the rest of the house if they're not under foot while she's trying to get dinner.

There are other danger areas where compartmentation can be used—good latches on the cellar door and screen door, a gate across open stairways, and safe screens on upstairs windows. Outside the house, a fenced-in yard can make the difference between a relaxed, safe summer or a daily mad chase for mother and child.

When a new baby arrives, he should be protected from the toddler by a sturdy gate or a latch that only an adult can open. Later on, the older child should have a room he can retreat to where the toddler can't mess up his toys and books, not so much for safety as to keep peace in the family.

These are the basic technics of compartmentation. Variations will suggest themselves to suit the needs of individual families. I would like to emphasize that compartmentation intelligently planned and carried through is not a device to make the child unhappy and frustrated. Quite the contrary, it should increase his happiness and decrease his frustration by reducing friction within the home. It should free the mother from the necessity of watching the child constantly and constantly interfering in what he is trying to do. Compartmentation is not carried out for all the hours of the day, for there are times when the mother can watch the child in an unrestricted area and guide his actions. However, as Dr. Kimball points out, the small child should for at least half the waking hours of the day be relieved of the responsibility of not touching adult things.

Aside from compartmentation and removal of hazards, there are certain times when the child must be either physically restrained or constantly watched. Babies are real Houdinis about wriggling out of high chairs and falling on their heads. When mother goes to answer the phone while the toddler is playing in the tub, he has several choices—fall down in the tub, tumble out of it, turn on the hot water, or quietly drown.

Safety of the child in the automobile is a somewhat different subject, but an extremely important one. It has been shown statistically that in automobile accidents the person most subject to serious or fatal injury is the child in the front seat, especially if he is standing up. The average car seat that fits over the top of the front back-rest is almost as bad as no seat at all. I have had the personal experience of picking my own child, car-seat and all, off the floor after I made an emergency stop. If I'd hit the darned fool who pulled out in front of me, the child would have gone through the windshield. Now I see to it that our car-seat is firmly anchored, and any child who sits up front wears a seat belt. Sitting or standing behind the front seat is relatively safe, provided the back doors are provided with one of several safety devices to prevent their being opened by children.

As I have said, it is difficult to prove statistically that personal safety planning is effective. Let me give just one illustration where figures can be used in a more or less concrete manner. The Cornell

Crash Research Program has shown that mortality in automobile collisions can be reduced about 60% by the use of proper seat belts. Suppose that you begin using seat belts on your three-year old child or grandchild, and instill the seat belt habit into him so firmly that he continues to use them throughout his life. Assume that this cuts his chance of being killed in an auto accident by only 50% instead of the 60% or more quoted by the Cornell group. Statistical analysis shows that you will have increased his average life expectancy by more than two months. Not bad for a $10.95 investment in a seat belt!

As the child becomes older, education in recognizing and avoiding hazards obviously becomes more important than the protective measures already discussed. Physicians should alert parents to their responsibilities in providing this education. It might be added that a tendency toward "safeness" in a child is an expression of his total personality. Studies of accident repeaters have shown that the tense, disturbed child may be decidedly "accident prone." Everything we do to help a child develop normally in a relaxed and stable environment makes a contribution to his safety.

How can we as physicians, independently and in our societies, hope to be effective in safety education of parents and children? First of all we must *think* safety, and then we must *talk* safety. Those of us who do well child care must learn to include a discussion of safety practices as a routine part of our advice to parents. After all, we don't feed babies any more—the coalition of neighborhood mothers and baby food companies has grabbed the feeding ball and run off with it. This means that, if we don't need to unwind a baby from an overfeeding problem, we should have a little extra time to discuss safety. This discussion shouldn't be dragged in by the heels, so to speak, but should be worked naturally into the conversation. If we are alert, we will find plenty of cues.

I am reminded of the story—probably apocryphal —of the psychiatrist who was screening prospective draftees. As each man came into his office, the psychiatrist waved a white handkerchief at him and said "What does this make you think of". The first replied, "I think of bands playing and soldiers marching down Fifth Avenue on a wonderful spring day with people cheering and waving flags." The psychiatrist passed him without comment. The next man said, "I think of my poor old mother waving goodby as my train pulls out of the station." The psychiatrist jotted on his record, "Slighty depressed, but o.k.". To the third man he asked the question, "What does this handkerchief make you think of?" The man replied "Women". "Women? Why?" "That's all I think about."

The point is that if we're safety-minded, we'll think about safety and find occasions to bring it into the conversation. Mothers often bring the subject up themselves by some remark such as "I want you to check his head real good because he fell down the steps yesterday." Such a comment should start a reflex chain of events beginning with a discussion of stairway protection in general and progressing to other possible hazards of the child's current developmental stage. In ending the safety conversation, the physician should give the parent one or two pieces of appropriate safety literature with a brief comment about them. All this can be done while he is examining the child's head "real good" to reassure the mother.

Other conversational leads are frequent, if looked for. When a mother with a baby on the examining table turns her back to pick up a diaper, the safety lecture is automatic. Of course the mother always says "Oh he can't roll over yet," and we have to point out patiently that safety planning lies not in preventing what we expect to happen, but in preventing what we don't expect but which might easily happen anyway. . . . Often a parent will hold a lighted cigarette and a baby at the same time, giving the opportunity to discuss fire hazards. Whenever I enter an examining room and find a toddler busily trying to open my cabinets, I talk to the mother about dangerous materials in her cabinets at home. There are safety gates and latches in my office. I often have to close them to prevent some toddler from slipping away to go fishing in the men's room commode or racing through the psychiatrist's waiting room next door. Whenever I do, I try to discuss the advantages of using such safety equipment at home.

I mentioned safety literature, and there is plenty available. Just recently the Diaper Institute of America made available at minimal cost to doctors a series of six safety sheets, each covering the hazards of a particular age group. These can be obtained through the American Academy of Pediatrics. Several life insurance companies have free safety pamphlets. Among the outstanding ones are those of the Metropolitan Company, "A Letter to Parents", and "A Formula for Child Safety". This kind of material can be very helpful, especially if

the physician makes a few comments to focus attention on it as he gives it out.

A safety bulletin board is very appropriate for the doctor's office. In addition to material from various safety publications and pamphlets, I try to keep one or two newspaper clippings about recent childhood accidents fastened to a piece of cardboard which says in large letters, "Could this accident have been prevented?" This is a very good attention-getter. Almost everyone has enough morbid curiosity to read it.

Leaving the doctor's individual office, it is appropriate to ask what organized medicine as a whole should be doing about child safety. What is Virginia doing? There is an Accident Prevention Committee formed jointly by the Virginia Pediatric Society and the state chapter of the American Academy of Pediatrics. It has been at work in the past and has big plans for the future. Chairman of this committee, Dr. H. William Fink, was instrumental in planning an accident prevention campaign in Norfolk last year. The Junior Chamber of Commerce set up the program and representatives from the County Medical Society, local hospitals, city Health Department, Retail Druggist Association, Red Cross, PTA Council, and Public Safety Department worked on it. During this campaign our new Poison Control center was publicized, as well as general measures of child safety, by means of radio, TV, newspapers, and addresses before various clubs and organizations.

The Accident Prevention Committee emphasizes that the big safety campaign is only part of the answer to the accident problem. A continuing, year-round program by doctors, hospitals, and medical societies is needed. Every local society should have its own accident prevention committee to study local needs and coordinate local plans. Every hospital emergency room should be set up for fast and accurate handling of accident and poisoning cases. The telephone is the chief instrument for obtaining early attention for most poisoning cases. Suppose a frantic mother calls to say that she can't contact her doctor, and her two-year-old has just eaten half a tube of a well-known gelatinous substance containing oxyquinolone. The emergency room personnel should have at hand a book such as "Toxic Ingredients of Commercial Products"[1] and know how to find out whether or not the substance is dangerous. If they can't find the answer in the book, they should know how to contact one of the four Poison Control centers in the state to obtain the information. All those who handle the doctor's phone at the office and at home should be equally versed in what to do about a possible poisoning call. Time lost in deciding whether or not to bring a child in for treatment can be a crucial factor in the prognosis of a poisoning case.

The hospital emergency room is also an excellent place for spreading accident prevention propaganda. We've mentioned the complacency of parents about accidents. This complacency is never shaken so much as when a person's own child has just had a frightening accident. Just as soldiers traditionally are supposed to "get religion" during a battle, these parents have suddenly got religion about accident prevention. We want to see to it that they get the sermon then and there. Every emergency room should have its own safety bulletin board, and copies of several different safety pamphlets should be readily available.

I think we will have to conclude that there is much that can be done, and much that we are not doing in childhood accident prevention. In the great organizational work of our medical societies and hospitals, more time and thought must be given to our responsibilities in this field. In our private practices, we can do acceptable jobs of well child care by making examinations, answering questions, and giving routine immunizations. This should not be acceptable to us as physicians. No one is going to ask us "How can I make my child's environment safer?" But they have asked us implicitly "Help me raise my child to be strong and healthy." It's up to us to tell them the things they need to know, even though they don't know they need to know them.

Few will thank us for safety advice. Certainly no one will pay us extra, as they do for immunizations. They don't realize, but we should, that diphtheria, whooping cough, tetanus, smallpox, polio, and typhoid fever combined now cause only about 1/20 as many deaths in the children of this country as do accidents.

This then is the challenge, and the opportunity, that confronts us. There is no glory, no tangible reward in accident prevention work. There's no immediate satisfaction to compare to that which we feel when we help pull a child through a critical illness. You never see the child you save through accident prevention. If we seriously undertake the burden, we can only be promised a life-time of stressing the same points day after day, and still finding the next day's parents just as complacent about child safety.

But the results are there, intangible though they may be. It takes a higher order of imagination to receive a feeling of accomplishment in child safety

work. A higher order of responsibility is required to accept the challenge laid down by the 11,000 deaths and untold suffering of childhood accident victims each year. Medicine has faced many responsibilities in the past. Let us see to it that this challenge does not go unheeded.

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Fall Prevention for Aged

Falling is one of the commonest but most unnecessary hazards faced by older persons. Hundreds of thousands of old persons are injured every year from falls, and more persons die after 65 from falls and their complications than from auto accident injuries, according to an article in the February Today's Health, published by the American Medical Association.

The article listed some of the major causes of falls and the ways in which they can be prevented. One of the major factors in falls is that as persons age their balance-recovery machinery fails. If a person starts to "teeter," certain muscles in his body instantly go into action to keep him on his feet. But in the older years, these muscles get lazy and don't function as rapidly.

Some of the most common causes of falls and their preventions are:

—Stairways. When an older person goes up or down stairs, he should not take one step with each foot, but should put both feet on a step before proceeding to the next one.

—Insufficient light. Older persons don't see as well as they once did. Stairways especially should be lighted. A night light in the bathroom is recommended. In addition, a person should keep a flashlight by his bed to use if he gets up in the night.

—Bedrooms. The most dangerous room in the house is not the kitchen, but the bedroom. This is where most elderly persons fall, often because they get up too quickly and become dizzy. When a person gets up, he should sit on the edge of the bed for a few minutes.

—Bifocal glasses. These are especially dangerous when a person goes downstairs, since he may look through the lower lens and the steps become blurred.

—Taking a step backwards. If a person feels uncertain about his footing, he should never step backwards unless he can see where he is going.

—Not lifting feet high enough. As a person ages, his muscles and ligaments are less lively and he doesn't lift his feet as high, with the result that he trips over all sorts of small things—rug corners, toys, thresholds and doormats.

—Ice. When the sidewalks are slick, a person should stay indoors. If he must walk on ice, he should use a flat-footed shuffle, keeping his weight forward.

—Bathrooms. A rubber suction mat in the tub is a must for tub or shower. In addition, grab-bars installed on the wall in the right place by the tub or shower can prevent falls.

—Climbing on chairs. Some older persons won't admit they're old and insist on climbing on chairs and tables. These are dangerous.

In addition, there are dozen of other things that contribute to falls, including escalators, poor housekeeping, high bus steps, shiny, slippery floors, and throw rugs that slide.

The article urged all persons to learn to walk properly and to arrange their environment so they won't fall. In conclusion, it listed three rules for helping people to stay on their feet in old age: start studying "senior-age safety" early; keep your weight down, and keep in good physical condition.

The article was written by Edward D. Fales, Jr., Lime Rock Station, Conn.

Fat Embolism

Case Report and Review of the Literature

BENJAMIN S. PERKINS, M.D.
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FAT EMBOLISM is a syndrome often associated with soft tissue trauma and fractures of long bones. The outstanding characteristic of this syndrome is the result of a twofold process: first, mechanical obstruction of the capillaries by fat globules results in right heart failure and acute cor pulmonale. Second, the delayed chemical action with hydrolysis of the neutral fats to produce fatty acids results in the destruction of the endothelium of the involved capillaries.

The first evidence of fat embolism was seen in 1862 by Zenker[31] who injected milk into the veins of a rabbit and produced death. In 1907 Rainier[18] advised the use of a tourniquet to prevent the transport of fat emboli. The mechanism of fat emboli, until recently has been a rather theoretical subject, and as late as 1948 an official British journal,[61,18] published a statement that fat embolism, as a true entity, does not exist and felt the diagnosis should be abandoned. In 1957 Harkins, Allen, Moyer, and Rhoads,[1] in their discussion of fat embolism stated, "The significance of fat embolism has not been established conclusively. Among the troops of the United Nations in Korea, Scully was often able to demonstrate at autopsy fat emboli in the small pulmonary vessels. No clinical significance was evident except in infrequent cases in which emboli passed through the pulmonary circuit to reach the brain or kidney and result in disturbances of the sensorium or hematuria. The therapy is entirely nonspecific."

Other reports show a gradual and progressive recognition of the condition as noted by Sutton[56] who, in World War I, showed a 10% incidence in wounds. Robb-Smith[50] in 1941, showed 789 accidents with 41 fat emboli and 29 as a major cause of death. Thus the incidence of fat embolism is being more actively discussed and is recognized now as a major problem in the complications of long bone fractures and in elective orthopedic surgery.

The concept of fat embolism until recently has been that the emboli consist of mechanically released particles of fat, usually marrow fat from the fractured bone. The fat is presumed to have been sucked into the veins and carried to the lungs as emboli. Several articles attempt to refute the correctness of this theory. Some of the outstanding reasons presented have been the presence of a high incidence of fat embolism seen in ordinary postmortem findings which are identical to those seen in fat embolism from fractures of long bones. Wright[62] in 1932, showed a 52% incidence in ordinary postmortem findings. Other examples have been seen in burns and cardiovascular deaths. There is the question of a disturbance in the lipid metabolism or a change in the emulsification of neutral fats with increased mobilization of fat, synthesis and/or decomposition of fat as noted by the increased serum lipids. This is seen after ether anesthesia or after the ingestion of alcohol.

Observations of the extent of trauma and the frequency of fat embolism by Johnson and Svanborg[10] showed that extensive injury to the bone marrow may produce practically no fat embolism where in other cases minor injury will result in severe fat embolic syndromes. Baylor & Baylor[63] in 1949, and Harrison and Street, in 1951, and Key and Lottes[65] have reported intra medullary nailing of fractures with no incidence of fatal embolism. Contradictory statements are seen by Kuntscher[30], "Fat embolism is the most common complication of medullary nailing." There have been reports of high incidence of fatal emboli in cases where no trauma was present such as burns, acute hematogenous osteomyelitis, and periostitis.[23,44,45] There has been some discussion concerning the passage of fat emboli through the capillaries of the lung into the smaller vessels of the brain and kidney[10]. This has not been proven conclusively.

With this preface in mind a detailed report on a recent case of fat embolism at this hospital with recovery is presented.

A 21 year old white male from Grayson County, Virginia, was admitted to the Marion General Hospital on June 21, 1957, sustaining multiple fresh

Presented at Southwestern Virginia Medical Society at Radford, Virginia, April 17, 1958.

fractures of the right thigh and right leg. These fractures involved the middle third of the femur, tibia, and fibula with over-riding, but no evidence of a compound wound. (Fig. 2-3) At the time of admission the patient was conscious, alert, and gave a history of being caught between his motorcycle and the fender of a car when struck at an intersection. He was pinned between the two, injuring only his right leg and right thigh. There was no evidence of head injury, no loss of sensorium, and no abrasions, contusions, or lacerations of the skull, trunk, or any other part of the body. His past history revealed that as a child an attack of acute hematogenous osteomyelitis involving both femurs required drainage at that time. These areas were then well healed. The remainder of the physical findings were essentially negative. Temperature 98.6°, pulse 80, respirations 18, blood pressure 130/80. The patient was placed in skeletal traction with a pin through the upper third of the tibia and the leg placed in a Thomas splint with a Pearson attachment. An open reduction was planned for the following morning. However, about 7 a.m., the patient suddenly developed drowsiness and preoperative sedation was withheld. On examination the patient was semicomatose. He developed severe generalized convulsions and lapsed into a deep coma. A mild shock was present and a gradual decerebrate rigidity developed which lasted for about two weeks. An intracranial lesion was considered though there was no history of head injury. A catheter was inserted and only 50 cc. of bloody urine was obtained in the first 24 hours. On the second day following injury, the patient developed acute pulmonary edema. This was treated with atropine, gr. 1/100 every two hours, rapid digitalization, nasal oxygen, hypertonic glucose solutions, and antibiotics. The urinary output after the first 24 hours gradually improved. The serum lipase done at this time was within normal limits. The advancing cerebral edema, repeated generalized convulsions, and hyperthermia, poor general condition, etc., definitely limited his prognosis. Intravenous fluids were limited to 1,000 cc. of 5% glucose in water with an additional 50 cc. of 50% hypertonic glucose solution daily in an attempt to reduce the cerebral edema. The pupils were markedly dilated bilaterally, the patient was in decerebrate rigidity with bilateral positive Babinski and absent abdominal reflexes. Fat was present in the urine in a dilution of 1-1800. The extreme hyperthermia which reached 104-105° was controlled by the use of ice packs (see graph). The patient was semicomatose for a period of eight weeks and then gradually improved. Tube feedings using a sustagen tube, catheter drainage, movement from side to side and careful nursing care greatly helped in his recovery. Early in the state there were petechial hemorrhages along the lateral chest wall especially on the left side and a drop in hemoglobin from 95 to 70%. This latter was corrected by 500 cc. of whole blood. The patient gradually improved and by August 1, 1957 he was able to move his arms and legs. A body cast was applied incorporating the tibial pin in a double hip spika. Neurosurgical consultation with Dr. William Tice

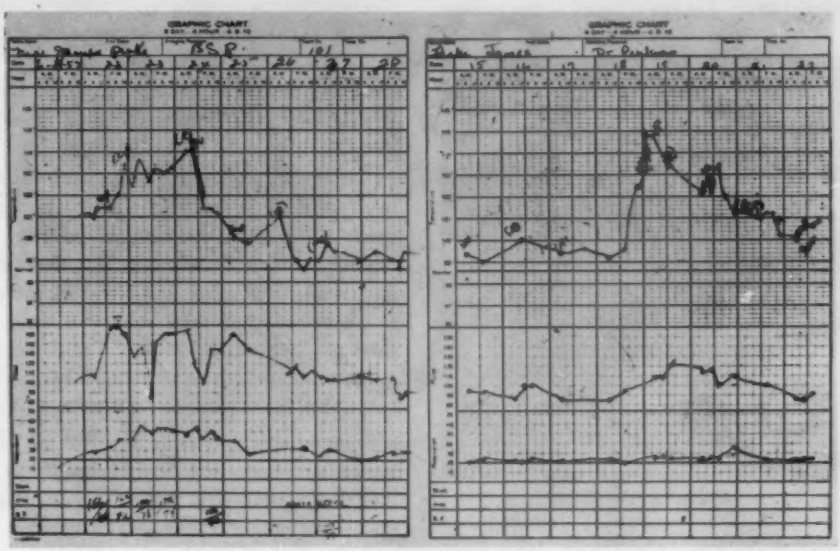


Figure 1

of Roanoke, on July 7, 1957 confirmed the above findings. "The patient showed a decerebrate state with very little extensor rigidity but at this time showed no voluntary movement of the extremities. The reflexes were active and essentially equal, with the reflexes more prompt on the right than on the left. There were bilateral positive Babinski reactions, and absent abdominal reflexes. There were no responses to painful stimulation. The pupils were large and equal. The eye grounds showed white areas of retinal degeneration which resembled exudates of secondary hemorrhage."

Some residual brain damage is noted at the present

Figure 2

time especially in memory loss. He can read, write and move his legs and arms, and at the present time the described fractures are well healed. He was discharged on August 8, 1957, and at present has minimal residuals of his lesion. We feel that he has made an amazing recovery.

Fat embolism after trauma has been confused with pulmonary edema, subdural hematoma, bronchopneumonia, and diabetic coma. It has been unrecognized frequently until too late to institute possible life saving therapy. Patients often die in acute right sided heart failure early in the first stages of fat embolism. The significant diagnostic signs are usually a marked drop in hemoglobin out of proportion to the blood loss about the fracture site.[64] This is usually seen 48-72 hours after the initial onset. Fat globules may be seen early in the blood stream with a dark field microscope and fluoroscreen; in the urine using the sizzle test of Scuderi[55] and in the sputum. The serum calcium usually drops, the serum lipase will rise in 2-6 hours after the incident and will return to normal within 24 hours. Petechial hemorrhages are noted about the chest and abdominal wall. Acute cor pulmonale occurs after the embolism is quite marked and is often accountable for the high mortality.

Bone marrow embolism which sometimes appears coexistent with fat embolism is an identical mechanism but is usually seen with rib and vertebral fractures rather than long bone fractures. Rappaport and Rone and Howe[32] described two hundred cases of trauma where bone marrow embolism was present in a 6% incidence. They state, "The intramedullary sinusoids of the blood spaces may be separated from the systemic circulation by a single endothelial cell and it is hard to understand why bone marrow embolism is not more common." Other types of embolism have been noted, i.e., pulmonary embolism from blood clot (thrombophlebitis), cotton fibers, metallic substances, particulate foreign body and air. In pulmonary embolism, a mechanical block of the main trunk of the pulmonary artery results in prompt death when 60% occlusion is present. A similar type of mechanical obstruction occurs in fat embolism during the first stage but involves rather massive embolism of capillaries with resultant acute and sudden severe dilatation of the right heart, drop in minute volume, increased pulmonary artery pressure, and fall in blood pressure, cardiac output and apnea.

Many experiments using the so-called "bland" substances have been used. Zenker[31] in 1862 injected milk into the jugular vein. Dunn[6] in 1920 used potato starch and saline, Harman and Ragaz[42] in 1950 used

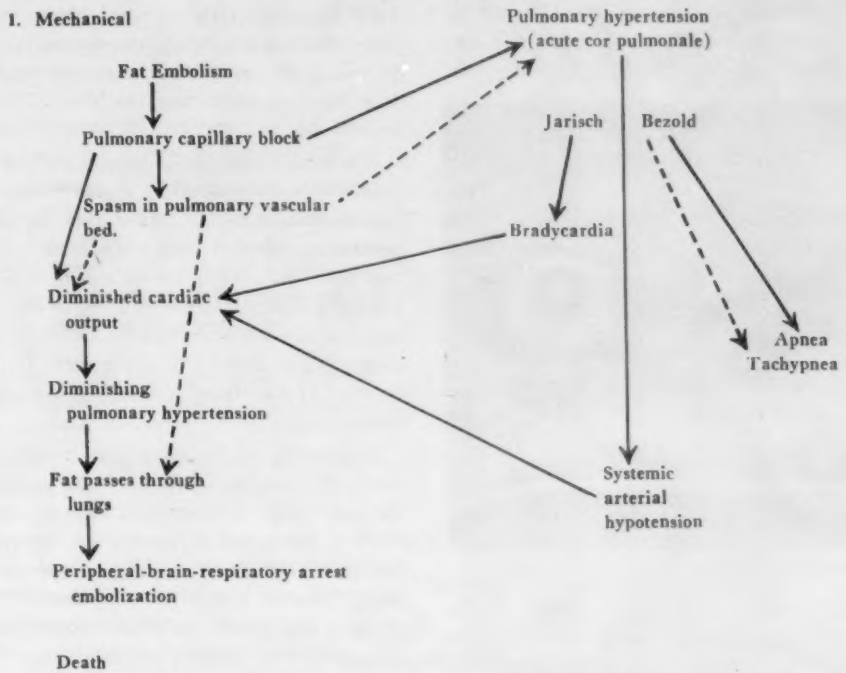
Figure 3

an alcoholic extract of homogenous fat and injected it into rabbits and their results showed similar effects, i.e., mechanical obstruction but in addition a severe chemical irritation. When paraffin was used no such pulmonary lesions could be noted. His findings at this time were "considering the irritative nature of the long chain fatty acids on the tissues of the lung

with the presence of lipase in the alveolar septum, it was felt that the lesions were the result of hydrolysis of the emboli as neutral fat and inflammation produced by release of the fatty acids".

Price, Hatta, and Smith[67] in 1935 studied the effects of multiple small emboli and the dynamics of the resulting pulmonary hypertension. They used barium sulfate to produce mechanical obstructions as a source of emboli. Farris,[66] in the Surgical Clinics of North America in 1954, introduced buckshot up to three hundred pieces into the internal jugular vein of a rabbit and amazingly enough produced very little physiological change. These passed into the right side of the heart and out into the pulmonary circuit, done under local anesthesia without untoward results.

PHASES OF FAT EMBOLISM



Schema indicating possible consequences of fat embolism. Halasz, N. A. and Marasco, J. P.: An Experimental Study of Fat Embolism. Surgery 41: 1957.[6]

In order to discuss fat embolism a review of the chemistry of fats is in order. Fat can be extracted with ether and alcohol and in this extract fatty acids are found. Fatty materials are classified as: 1. Tryglycerides of fatty acids, that is true fats and oils. 2. Lipid compound of fatty acids with secondary alcohol cholesterol. 3. Free cholesterol and various pigments which are soluble in fat but are not related closely to the fats. These are unsaponifiable materials and classified under sterols. Oleic acid ($C_{18}H_{34}O_2$) linoleic and linolenic are the unsatured fatty acids. Stearic and palmitic acids are saturated and these are solidified at body temperature. Phospholipids are found in all tissues and sphingomyelin is found mostly in the brain and nerve tissue. The sterols, cholesterols, complex hydroaromatic alcohols are found in essentially all tissues and body fluids. They exist in a free state and with fatty acids as esters. The increase in cholesterol ester indicates that the sterols play a part in the transport of fatty acids. There is neither fat nor phospholipid in the urine normally. Absorbed fat can be seen in the blood as minute particles through a dark field microscope less than one micron in diameter called chylomicrons. Normally about three fourths of the fat in blood is in solution and is attached beta lipo protein. A physiological hyperlipemia is seen after ingestion of fats with a peak occurring about three hours after the ingestion of the meal. The turbidity seen in the blood in hyperlipemia is due primarily to an increase in the neutral fat. When the cholesterol or phospholipids are elevated, the serum is clear. "Boyd concluded that the phospholipids tend to maintain the other fat fractions in a supersaturated state in the serum. Lehman

and Moore[44] have already suggested that this phenomenon may be due to fat normally in the blood aggregating into larger particles as a result of certain physical and chemical changes in the blood."[23] However, there are no changes in the hematocrit, blood volume, etc., to substantiate this. Scuderi[35] was one of the early ones to show that hydrolyzed fat is much more toxic than neutral fat from which it is derived and produces an intense exudate in the lungs in experimental animals. He found that oleic acid was seven times as lethal as neutral bone fat. Gomori and others have demonstrated that lung tissue is high in the enzyme lipase.

Fat is removed from the circulation by four mechanisms, excretion going through the kidneys, excretion through the liver, reticuloendothelial system, and blood and tissue lipase. Swank[57] noted

Figure 4

physiological clustering of fat chylomicrons in the blood after a fatty meal. These larger fat particles are then presumedly strained out of the circulation by capillaries and reticuloendothelial cells. Why alcoholics are more prone to fat embolism than nonalcoholics has not been proven. However, this is also seen with ether and cyclopropane anesthesia. It has also been noted with some increased incidence in the use of intravenous ether. Du Toit[23] suggests that the fat emulsion is less stable in these individuals and postulates that this is due to frequent dilution with alcohol in the case of the alcoholic. It seems probable that fat solvents may in some way make the fat unstable.

In reviewing his work[18] we see that the amount of fat in long bones was considered to be insufficient to produce fat embolism after fractures. This was first noted by Scriba[54] in 1880 and then again by Lehman and Moore[45] in 1923. They felt the local site of fracture was not the true source and that there was a systemic site of pulmonary embolism. Their conclusion,[45] however, was based on studies using rabbits in determining the amount of fat in the diaphysis which they estimated to be about 70 grams of fat. Peltier,[20] however, studied human femurs and extracted the fat with 95% alcohol and ether. He found that the tubular diaphysis does not contain a major store of bone fat as assumed by Lehman and Moore, and that the spongy metaphysis contained the greater volume (60% in the metaphysis) with a total of 121 grams of bone fat in the adult. This fat from the human long bone and subcutaneous tissue is almost entirely neutral with 60-80% of the fatty constituents being unsaturated. The major portion of the unsaturated fatty acids consist of oleic acid which is seven times as lethal (Scuderi)[35] as neutral fat.

The toxic properties of neutral fat and free fatty acids are well evaulated by Peltier[18,22] (see graphs). The injection of neutral fat results in sudden dyspnea, venous engorgement, and white froth at the mouth and nose. At autopsy the right side of the heart is markedly dilated, there is thinning of the wall of the ventricle, the lungs are moist, somewhat heavier and anemic. The toxicity of the neutral fat thus is a function of the viscosity, resulting in acute cor pulmonale.

Fatty acids, on the other hand, result in toxicity which is a function of the degree of unsaturation of the fatty acids. This appears after a latent period, of 24-72 hours, and is due to the hydrolysis of neutral fats. The result is dyspnea coming on more slowly, profuse flow of serosanguineous fluid from the nose and mouth, no venous congestion, and at autopsy the heart is small and not dilated. The lungs are markedly engorged with a bloody exudate and there are multiple areas of hemorrhagic infiltration of the lungs. The hemoglobin drops out of all proportion to the amount of blood loss at the fracture site. Petechial hemorrhages are seen in the skin especially in the trunk. The findings in the brain as noted by Pearsall and Weaver[23] show "hyperemia of the meninges and cortical vessels. The gray matter shows little change whereas the white matter shows petechial hemorrhage. Areas of softening are noted in the brain stem especially where the capillaries contain fat emboli. The choroid plexus frequently shows widespread damage. There is perivascular myelin degeneration and usually little neurological reaction."

Peltier,[22] in the previous references, shows that the rabbit dying after the injection of 900 mg. of trilene, on autopsy, revealed a lung markedly anemic. Histological study of a section of this lung showed some disorganization of the alveolar pattern with some edema. The rabbit dying after 250 mg. of oleic acid being introduced intravenously revealed a grossly hemorrhagic lung. Histological sections of this lung revealed marked congestion, hemorrhagic exudate and disorganization of the alveolar pattern. This death due to trilene was on a viscosity basis with mechanical obstruction, whereas death resulting from the injection of oleic acid following a latent period of 24-72 hours after the injection was due to the hemorrhage into the lung secondary to the chemical action of the fatty acid. Other investigators have substantiated this viewpoint.[38,43,55]

II. Chemical Phase of Fat Embolism
Toxic properties of neutral fat and fatty acids

1. Neutral fat-toxicity is a function of the viscosity.

↓

1. Sudden dyspnea
2. Venous engorgement
3. White froth at mouth and nose

Acute right heart failure due to mechanical block.

4. Autopsy—Right side heart markedly dilated thinning of wall of ventricle
Lungs moist—somewhat heavier and anemic

2. Fatty acids—Toxicity is a function of the degree of unsaturation.

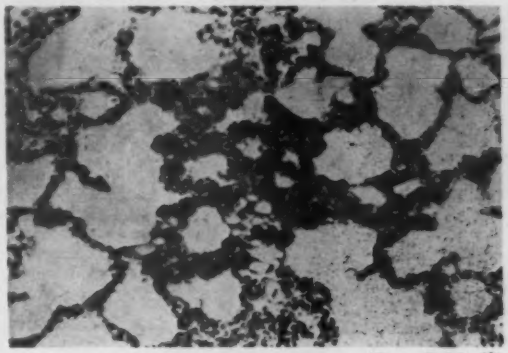
↓

1. Dyspnea more slowly

Latent period 24-72 hours due to hydrolysis of fats

2. Profuse flow serosanguineous fluid nose and mouth.
3. No venous congestion
4. At autopsy heart is small—not dilated
5. Lungs engorged with bloody exudate
6. Multiple areas of hemorrhagic infiltration in lungs

Experimental studies done by Nicholas Halaz and John Morasco[6] concerning the physiological changes in pulmonary artery pressures and femoral artery pressures proved interesting. These experiments using dogs and inserting catheters into the pulmonary artery, left auricle and into the femoral artery revealed rather dramatic changes after the injection of fatty substance. These consisted of a rapid rise in the pulmonary artery pressure during the injection and a fall in the femoral artery pressure and at the same time a period of apnea lasting for 3 to 15 seconds and up to 3 minutes. In addition there was a marked bradycardia, a drop in blood pressure, and cyanosis followed by a deep slow Cheyne-Stokes respiration. Sometimes there is a short period just before death of extreme tachypnea produced by the intercostal muscles without diaphragmatic action. This is known as a Churchill-Downing reflex[6] due to the distention of the pulmonary vessels. One should

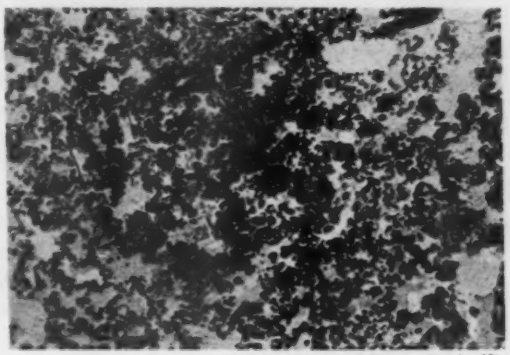


(From Peltier[18])

Figure 5

refer to their article concerning this graph (Fig. 7) for further details.

The one consistent finding noted was that fat was not found in the venous side of the pulmonary circuit, left side of the heart, until shortly before death. Another graph from this article[6] describes the mechanical phase of pulmonary embolism. Emboli block the pulmonary capillaries with spasm in the pulmonary vascular bed producing an acute cor pulmonale. The so-called Jarisch-Bezold reflex (bradycardia, apnea, systemic arterial hypotension) is due



(From Peltier[18])

Figure 6

to the distention of the pulmonary vessels. This was followed by a diminished pulmonary hypertension as the fat passes through the lungs with massive peripheral embolization resulting in death. Immediate cause of death in all cases appeared to be a respiratory arrest which preceded cardiac standstill

and was felt to be due to the cerebral anoxia secondary to the fat in the vessels of the brain. This is a theoretical graph which was set up by these authors[6] to describe the possible developments that take place during the pulmonary embolism in the first stage of the embolic phenomena.

Peltier[19] used a tourniquet in studying the effects of trauma in dogs. When the tourniquet was left in place for a period of 30 to 60 and even 90 minutes after long bone fractures, no fat emboli could be found in the blood until the release of the tourniquet. When no tourniquet was used, after 30 minutes five

Inflammation of bone. Hedri[44] felt that acute hemolytic osteomyelitis and acute periostitis are very definite sources of fat embolism. 2. Soft tissue damage. 3. Changing altitudes and pressure, i.e., deep sea diving and high altitude flying. Hawkins and Ratkins demonstrated that the typical "bends" syndrome is not only a source of nitrogen bubbles but also of fat emboli. It is to be noted that bone marrow embolism and fat embolism coexist in a ratio of about 84% fat embolism to 26% bone marrow embolism.

In summarizing, it would appear from the review

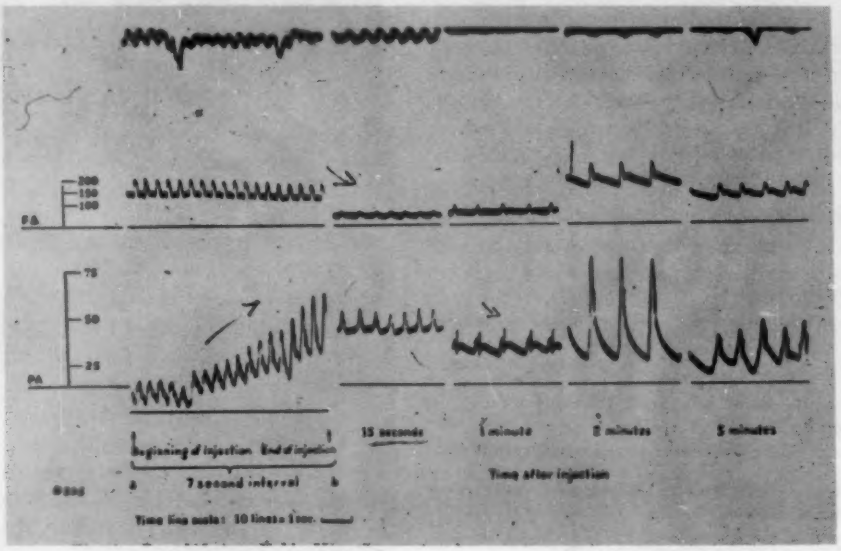


Figure 7 (From Halasz and Marasco[6])

out of seven dogs showed fat emboli present. After the release of the tourniquet, the morbidity remained lower than when no tourniquet was used. This emphasizes the importance of the use of the tourniquet and the prophylactic measures to prevent the transport of fat emboli. Local tissue pressure has been shown to be a major factor. When fractures are closed considerable higher frequency of fat embolism occurs than in open or compound fractures. Stress, ACTH, cortisone, have failed to show any effect on fat embolism[18]. A fatty meal has shown no particular effect although previously described to have a moderate effect. (Pearsall and Weaver[23]). This was refuted by Peltier.[18] The systemic stores of fat cannot be completely excluded although the weight of evidence is on a local rather than a systemic effect in fat embolism.

Other situations in which suspicion of the fat embolism syndrome should be considered are: 1.

of the literature and a study of the case history presented that the basic cause of fat embolism has not been definitely established and needs further investigation. Warthin[60] in his classic review felt that the source of fat embolism was at the injured site and most authors still agree with this. The most logical explanation at the present time seems to be this is a twofold process making fat embolism a syndrome rather than a lesion. First, mechanical obstruction due to the viscosity of the neutral fat results in acute cor pulmonale. Second, 24 to 72 hours after the precipitating occurrence, hydrolysis of the neutral fat produces unsaturated fatty acids such as oleic acid and results in severe chemical irritation and destruction of the endothelium of distant capillaries.

In considering the treatment and avoidance of the fat embolism syndrome there are several important factors that are felt now to be of benefit. 1. The use

of a tourniquet in elective cases. 2. The gentle handling of fractures. 3. Prevention of shock and dehydration. 4. Rapid digitalization in cases of right heart failure and pulmonary edema. 5. Consideration of the fact that ether and cyclopropane anesthesia increase serum lipids which may predispose to the fat embolism syndrome. Acute alcoholism also seems likely to be a predisposing factor. 6. The use of heparin appears to be of doubtful value and is only mentioned to be condemned since dispersion of the fat globules results in expedition of emulsification of the fat and break down into component fatty acids with resultant disruption of capillaries and endothelium. 7. Beware of a fall in hemoglobin 24-48 hours after long bone fracture.[64]

In the field of physiological and biochemical research there is an approach very much needed by the clinician. This is the suppression of lipase secretion during the chemical stage of fat embolization in order to prevent the hydrolysis of fats to fatty acids and the immobilization of calcium ion which become involved with the fatty acids to form calcium soaps. This involves the problem of elevated serum lipase in the pulmonary circuit during fat embolism.

We feel that an alertness to an all too seldom recognized syndrome in association with continued efforts in the physiological and biochemical fields may further aid us, the clinicians, to avoid preventable mortality and disability.

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Public Health . . . .

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State Health Commissioner of Virginia

Staphylococcal Infections in Hospitals (Continued)

Staphylococcal Disease on Surgical Services. It should be recalled that before antibiotics were known, staphylococci were the wound pathogens found in about two-thirds of all infections.

Clinical infection may be prevented in wounds produced by trauma by prompt and adequate removal of devitalized tissue and foreign bodies. The exact pathways by which staphylococci gain access to clean wounds are not known. A number of considerations suggest that the majority of clean wounds which have become seriously infected may have been seeded in the operating room. The deep-seated nature of the central focus, the frequent association with hematomata, the time of appearance following operation (usually noted at first dressing), and the known difficulty of experimentally infecting a sutured wound after a few hours have elapsed, are reason for this belief. A high percentage of opened or drained wounds will become colonized with staphylococci by cross-infection on the wards. This may happen without clinical manifestations and with little or no effect on the wound itself. This wound then becomes a reservoir of potentially virulent strains which may result in an outbreak.

Burns usually acquire profuse bacterial flora which reflect the patient's environment. There is evidence that burned patients, who in former years would have died during the first two or three days from fluid and electrolyte imbalance, are now saved to develop fatal sepsis. Staphylococci are the most significant organisms found in burned patients.

Staphylococcal disease concerns all of the surgical specialties. Severe outbreaks have been reported on thoracic services; problems involving bones and joints have followed radical surgery; urinary tract infections have been well documented; endocarditis and myocardial stitch abscesses have followed heart and great vessel surgery; enteritis, fatal parotitis, increased incidence of empyema in children, pneumonia in adults, respiratory infections in all ages have all been attributed to the staphylococcus.

Certain fundamental principles that have served the surgeon well in the past to prevent infection must be revised and adhered to strictly. The first and most important is surgical technique. Rigid aseptic and antiseptic methods are almost equally important. Good old-fashioned hospital cleanliness must be applied by all disciplines.

Separate operating rooms for clean and "dirty" cases are not recommended. All operating rooms should be cleaned between operations and meticulously so after an operation on a contaminated case. "Dirty" cases should be placed at the end of the operating schedule.

Operating room clothing must not be worn outside the operating room. Visitors to the operating room must change completely from street clothing before entering the operating room.

Patients should be brought to the operating room on a stretcher that has been thoroughly cleaned and covered with freshly laundered linens supplied by the operating room. They should not be covered with blankets from the wards.

Once the disease is established, isolation techniques must be practiced to prevent cross-infection. When a barriee nursing system is set up, it must be honored by all, physicians as well as nurses. Prompt incision and drainage or possibly a more agressive debridement and early secondary closure may be indicated.

There is no doubt that meticulous surgical technique and judgment can result in a staphylococci wound infection rate of practically zero. To bring this about:

1. Technique should be an adequate scrub technique combined with a thorough alcohol rinse of the skin.
2. Gentle handling of tissues and minimal usage of plain and chronic catgut, particularly in the parietes.
3. Routine closure of all surgical wounds with interrupted alloy steel wire is an important technical step.
4. Copious saline irrigation of wounds mechanically removes necrotic fat, blood clots, and also organisms which have seeded the wound during the time of the operative procedure.

5. Conversation during the course of an operation must be minimized to prevent a constant spray of organisms into the surgical wound.

6. Ill-advised drainage with irrigating foreign materials should be abandoned.

7. Local use of antibiotic agents prophylactically at the time of closure of uncontaminated, clean surgical wounds is open to question. Antibiotics are not effective in the presence of necrotic tissue or in an abscess. Their function is one of protection against invasive infection and metastatic complications incident to the surgical attack upon the lesion. When used, one must be selected to which the organism is apparently vulnerable.

8. Every effort should be made to minimize cross-infection through contaminated dressing carts and faulty dressing care.

9. It should be remembered that sterilization of anesthetic and endoscopic apparatus, stethoscopes, ophthalmoscopes, sphygmomanometers, etc., is necessary in epidemics to control spread of infection.

It would appear essential for every surgical service to keep a running record of its infection rates from year to year as a guide and measure of the success of its preventive program.

Staphylococcal Disease on General Medical Services. The life threatening staphylococcal disease syndromes observed in medical patients are staphylococcal bacteremia with metastatic involvement of many organs and staphylococcal pneumonia. Staphylococcal enterocolitis is more apt to occur in surgical patients. Primary hematogenous osteomyelitis is rare but metastatic osseous lesions frequently complicate the course of disseminated staphylococcal infections. The magnitude of the problem on medical services is not known and mortality figures do not convey information concerning its scope. Statements concerning morbidity give a clearer notion. Large outbreaks of the disease are unusual on medical services. Infections arise in patients already seriously ill with other unassociated diseases. Patients with leukemia, Hodgkin's disease, metastatic malignancies, diabetes, disseminated lupus erythematosus, renal failure, and chronic pulmonary disease are examples. Patients with exfoliative dermatitis, influenza, or any local surgical procedure, and patients receiving steroids or corticotropins, nitrogen mustards, radiation, folic acid antagonists, and even broad spectrum antimicrobial therapy are very suspectible.

Hospital-acquired staphylococcal disease decreases the efficiency of hospital operation, prolongs the stay of individual patients, increases the cost of medical care and jeopardizes the recovery of some patients. Many patients infected while in the hospital do not develop a recognizable infection until some time after their discharge and detection of its presence in the community becomes essential to delineation of the hospital problem and its control. A number of infants develop the first signs of infection after discharge from the hospital and transmission from them to their mothers takes place in the home. The epidemic strains are readily transmitted to other family members, persist for long periods within the family, and are responsible for endemic staphylococci disease within the family unit. A very significant community outbreak will follow uncontrolled strain specific nursery outbreaks. There is no satisfactory approach to eradication of epidemic strains from the family and the disease may be expected to recur over long periods despite repeated attempts to eradicate it.

(*To be continued in next issue*)

Ref: Hospital-Acquired Staphylococcal Disease. Proceedings of the National Conference, September 1958, sponsored by the U.S. Public Health Service and the National Academy of Sciencies.

MONTHLY REPORT OF BUREAU OF COMMUNICABLE DISEASE

	Jan. 1959	Jan. 1958
Brucellosis	2	0
Diphtheria	2	5
Hepatitis	26	29
Measles	1341	434
Meningococcal Infections	7	10
Meningitis (Other)	20	17
Poliomyelitis	2	0
Rabies (In Animals)	16	43
Rocky Mt. Spotted Fever	0	0
Streptococcal Infections	1014	529
Tularemia	4	8
Typhoid Fever	1	4

Mental Health . . . .

JAMES B. FUNKHOUSER, M.D.
EDNA M. LANTZ
Richmond, Virginia

Mental Hospital Population, Drugs and Rehabilitation

One of the big factors influencing the size of Virginia's hospital population is the rate at which patients return after discharge. Although all but a few psychiatrists have given up the theory that the moon has an influence on mental illness, State hospital authorities know that the rate of return, as well as the rate of first admission, is strongly influenced by matters somewhat beyond medical control. For example, the hospital census curiously enough fluctuates with the seasons. November, December, January, February were the low months from '52 through '58 (and before). (See Chart 1)

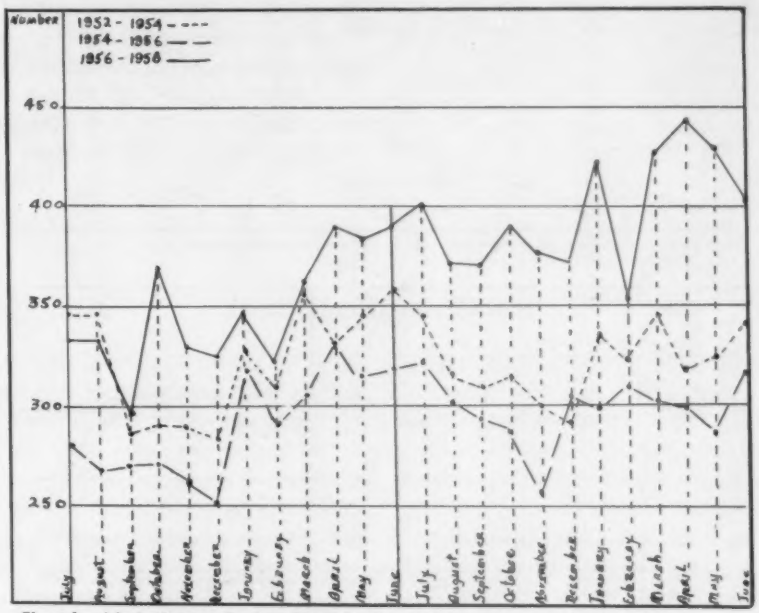

Chart 1 - Admissions to the four Virginia Mental Hospitals by months for fiscal years from July 1952 - June 1958.

But more important than the seasonal change is the influence of social and economic climate. Long term studies in other states, as well as Virginia, show that the first admission rates and return rates are higher during economic depression and lower during prosperous times. For example, they are lower during war than peace time. War probably drains the fully fit young men away from jobs that can then be handled by physically and mentally handicapped and so such people can survive economically outside the hospital. (See Chart 2) The two low points on the first admissions represent World War II and the Korean War. Readmissions were only slightly influenced by the two wars.

The advent of tranquilizing drugs, so extravagantly proclaimed by the lay press, and some professional journals, was given most of the credit for the slight population drops or leveling off of the census in mental hospitals throughout the country last year. Enthusiasts foresaw the eventual emptying of our mental hospitals and a new era for psychiatry.

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Approved for publication by Commissioner, Department Mental Hygiene and Hospitals.

Little credit was given to the favorable, socio-economic weather which notoriously affects first admission and return rates.

Practically no credit was given for the stepped-up intensive treatment program in the hospitals. This was directly the result of higher salaries for hospital personnel, increased staffs, etc.—also the result of economic prosperity.

Not enough credit was given to the weight of accumulated years of effort by mental health associations and other organizations who have gradually educated the public, the employer and industry into what may be called "community acceptance of the mentally handicapped".

However, a reaction to the factors which reduce hospital populations—drugs, intensive treatment, prosperous general economy, community acceptance (and to whatever factors such as the moon or sun spots which are still unguessed) has apparently set in.

Our hospital population is slowly rising again or is levelling off. (See Chart 3) Despite seasonal dips in December and January, the graph shows that the trough of 1957-1958 is beginning to swell. This is the same in other states with whom Virginia has a comparable reporting system.

Since the medical profession cannot hope to directly or appreciably alter the non-medical factors,

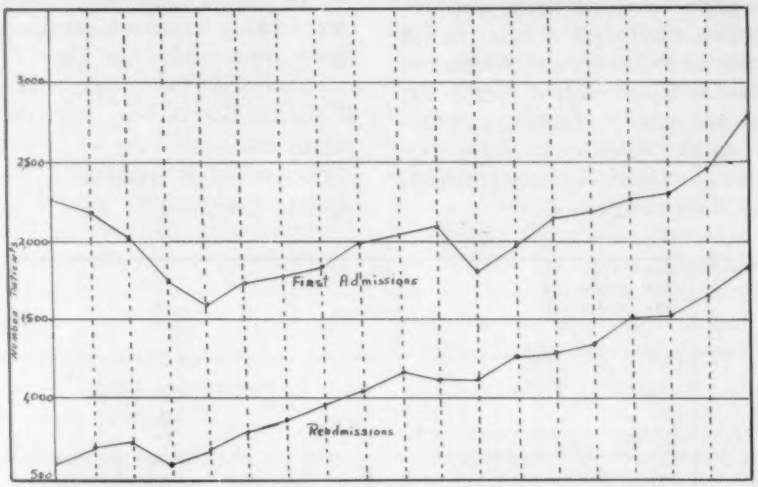

Chart II - First admissions and readmissions to the four Virginia Mental Hospitals by years for period 1940 - 1958.

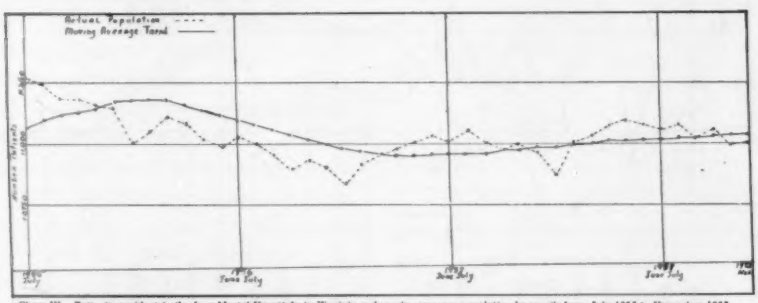

Chart III - Patients resident in the four Mental Hospitals in Virginia and moving average population by month from July 1955 to November 1958 (Dots between dates denote intervening months).

Community acceptance, however, has a companion factor, actually an opposing factor, which might be called "hospital acceptance". This is brought about by mental health information which leads to new cases being diagnosed earlier, people accepting hospitalization more readily and being admitted sooner. This in turn means better treatment results, sooner discharge, etc.

it means that our State institutions, already overcrowded, will become more and more overcrowded unless efforts are redoubled in directions where medical influence can be felt. We will have to further intensify our treatment program. (This means recruitment and enlargement of staff.) We will have to educate the public into even greater community acceptance of the discharged mental patient. The

other alternative is to build bigger hospitals.

Paradoxically the new tranquilizing drugs have not, as might be expected, reduced the need for nurses, doctors, social workers and rehabilitation experts. The drugs have actually created a demand for more personnel since they render many more patients suitable, amenable and feasible for psychotherapy and rehabilitation.

Among the leaders in the effort to return the patient to the community are the State and Federal officers of Rehabilitation. Initially designed for the physically handicapped, rehabilitation programs since 1946 include the mentally handicapped as well as the physically handicapped. Somewhat surprisingly, the mentally handicapped are often the very best and most suitable candidates for rehabilitation efforts. This can probably be explained by the fact that adult mental patients do no lose their vocational skills during a period of mental sickness. When they recover their mental heath, they do not have to be taught a new trade or vocation, as is usually the case with the physically handicapped individuals.

It has been abundantly proved by a number of studies that approximately two-thirds of the mental cases feasible for rehabilitation are successfully restored to gainful employment. A local study in Virginia jointly conducted by the Veterans Administration and the Virginia State Office of Rehabilitation showed that out of 75 mentally handicapped patients studied, 40 were accepted for training and 33 were employed. The annual income of the group employed was $93,245.00, an average for the individual of $2,825.00. This amount was $600.00 better than for the total (mental and physical) group of the handicapped.[1]

In other words, the mentally handicapped did better than the physically handicapped so far as economic rehabilitation was concerned. Recent studies in Massachusetts[2] show that mental patients are still gainfully employed 2 1/2 years after leaving the hospital. It is of considerable interest that a half of the patients in both of these studies are schizophrenics.

Aside from the humane considerations, there are strong arguments inherent in these figures to prove the wisdom of rehabilitation for the mentally ill. It is far better for a patient to be gainfully employed in the community as a consumer and a tax payer than to become a social drone by permanent residence in mental institutions, which are expensive to build, staff and maintain.

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Work for Heart Patients

Common sense and observation are the only basis on which a doctor can decide whether a heart attack victim should return to work.

In spite of all the material written and all the advice given, there is no way in which the doctor can tell if his patient should return to work except through his own "common sense and clinical judgment," according to a guest editorial in the February Journal of the American Medical Association.

Dr. Leonard J. Goldwater, Columbia University, New York, said interest in occupational activities for cardiac patients seems to be at an all-time high. Most studies indicate that most cardiac patients can safely return to work. Only a few need changes in occupation.

Before the doctor can decide about his individual patient, he must take a number of features into consideration. They include the patient's age, and previous occupational activity, the cause of his heart disease, the nature of the heart condition, the need for and response for treatment.

"Knowledge of the physical and emotional stress of the patient's job obviously constitute an indispensible part of the evaluation. Transportation problems and extraoccupational activities cannot be overlooked."

Pre-Paid Medical Care....

Edited by
RICHARD J. ACKART, M.D.

Richmond Blue Shield Directors

The Board of Directors of Virginia Medical Service Association, the Blue Shield Plan headquartered in Richmond, is composed of thirty-five persons: twelve physicians appointed by The Medical Society of Virginia; twelve physicians elected by the Participating Physicians; and eleven persons, also elected by the Participating Physicians (corporate membership), who represent the subscribing public. The physician Board Members should, of course, represent not only different specialists but also the several geographical regions of the area served by the Blue Shield Plan. That such is the case is apparent from a perusal of the list of Board Members for 1959 which is presented below. In summary, the specialties are numerically represented as follows: Internal Medicine, 5; General Surgery, 4; General Practice 4; Obstetrics-Gynecology, 3; Pediatrics, 2; and Anesthesiology, EENT, Orthopedics, Psychiatry, Radiology, and Urology each are represented by one physician. These twenty-four physicians, in turn, represent fourteen different communities or sections of the Plan's service area.

What are these physician-Directors of Blue Shield doing?

Most obvious is the fact that, through Blue Shield, they are helping one out of every five Virginians to prepay for basic medical service.

Through Blue Shield they are setting the pace and pattern for the evolution of the entire voluntary medical care insurance program in the United States.

Through Blue Shield they are proving that medical care can be prepaid by voluntary cooperation of doctor and patient—with free choice of physician for the patient, fee-for-service for the doctor, and a private confidential relationship between them—and that the people of Virginia like it that way.

Through Blue Shield they are showing that patients and doctors do not need an outside agency to bring them together, and that no one but the patient himself needs to profit from prepayment of medical care costs.

Through Blue Shield they are conducting an effective demonstration that physicians can solve urgent and complex social problems within the framework of private enterprise.

Theirs is a big job. They need the help, suggestions, and day-to-day cooperation of all members of the medical profession they represent.

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* Mason C. Andrews, M.D., Obstetrics and Gynecology, Norfolk.

Mr. H. A. Brower, Personnel Superintendent, E. I. du Pont de Nemours & Co., Waynesboro.

Mr. William T. Brunot, Comptroller, Reynolds Metals Company, Richmond.

F. Ashton Carmines, M.D., Orthopedic Surgery, Newport News.

George Cooper, Jr., M.D., Radiology, Charlottesville.

* Russell M. Cox, M.D., Pediatrics, Portsmouth.

Mr. R. B. Crawford, President, Kilkare Laundry, Farmville.

Mr. John E. Damerel, Director of Personnel, City of Richmond, Richmond.

Frank D. Daniel, M.D., General Practice, Charlottesville.

T. Dewey Davis, M.D., Internal Medicine, Richmond.

Mr. S. Douglas Fleet, Vice-President and Sales Manager, Albemarle Paper Mfg. Co., Richmond.

William Grossman, M.D., Pediatrics, Petersburg.

* Randolph H. Hoge, M.D., Gynecology, Richmond.

Guy W. Horsley, M.D., General Surgery, Richmond.

Mr. M. A. Hubbard, Executive Secretary, Virginia Farm Bureau Federation, Richmond.

Mr. William H. King, Attorney, Richmond.

Charles H. Lupton, M.D., General Surgery, Norfolk.

Mr. James Mann, Jr., Attorney, Norfolk.

*Directors selected by The Medical Society of Virginia.

Mr. William Meacham, Associate Editor, Norfolk-Virginia Pilot, Norfolk.

*Harold W. Miller, M.D., General Practice, Woodstock.

* Claude A. Nunnally, M.D., Internal Medicine, Fredericksburg.

* Wilkins J. Ozlin, M.D., Urology, South Hill.

H. Grant Preston, M.D., Ophthalmology and Otolaryngology, Harrisonburg.

* Benjamin W. Rawles, Jr., M.D., General Surgery, Richmond.

Edwin Rucker, M.D., Obstetrics and Gynecology, Richmond.

* William C. Salley, M.D., Internal Medicine, Norfolk.

*Directors selected by The Medical Society of Virginia.

* John R. Saunders, M.D., Psychiatry, Richmond.

Ernest G. Scott, M.D., Internal Medicine, Lynchburg.

McKelden Smith, M.D., Internal Medicine, Staunton.

Mrs. Ben Wailes, Dean of Women, Sweet Briar College, Sweet Briar.

Thomas Walker, M.D., Anesthesiology, Richmond.

* D. Edward Watkins, M.D., General Surgery, Waynesboro.

Mr. Morris W. Whitaker, Secretary, Allen-Morrison Sign Company, Lynchburg.

* Fletcher J. Wright, Jr., M.D., General Practice, Petersburg.

* Julian H. Yeatman, M.D., General Practice, Fork Union.

Research Dog Hero

The National Society for Medical Research has formally conferred the title of Research Dog Hero of 1958 on a mixed-breed, three-year-old dog from the Deep South. The dog is Big Ben, a large, mostly German shepherd animal. He was selected for the honor because of his part in Tulane University research which has placed medical scientists on the threshold of a startling new technique for attacking brain cancers.

Ben, a roguish, clownish canine according to the men who worked with him at Tulane, has "retired" from service as a research animal and is the adopted pet of a New Orleans family.

His outstanding service to science took place during a year long period, in which he provided living proof of the feasibility of a new "perfusion" treatment for deadly brain tumors.

He was twice the subject of experiments which showed that the technique called perfusion could be useful in the battle against cancer in human limbs and other organs. He also served as a blood donor for other animals. Once Ben had his own life saved by an emergency operation to stop a massive hemorrhage in his neck.

Through perfusion, medical men now can use drugs at two to three times the strength otherwise possible. If injected directly into the regular blood stream in such amounts, they would destroy vital tissue and would be fatal.

And it was Big Ben's medical career which made possible the improvement of this technique to the point where the brain, which is often the site of deadly tumors, can be successfully perfused in experimental animals.

To date, the perfusion treatment has been used in 73 instances on human patients' limbs and organs at Tulane. Brain perfusion has yet to be attempted on a human being. But it is likely that it soon will be, and Tulane medical scientists mark Big Ben's contribution as a milestone in medical progress against one of nature's cruelest diseases.

The big dog arrived at the Tulane medical school last year at the time when basic work was being done in perfusion. He had been sent to the school after being picked up as a stray in Mississippi.

The scientists' problems then were to determine how much anti-cancer drug could be used without seriously endangering normal tissue, and to develop a proper method to tie the heart-lung machine into the circulatory system of the limb or organ involved.

Big Ben had done his job. He deserved a home of his own. As soon as this was made public, applications flooded into the school. These were carefully screened and in August, Ben became the pet, playmate and watchdog of a local family with three children.

In the past four months, Ben has been one of the luckiest of lucky dogs. He is a beloved pet and a neighborhood celebrity.

The award presented by the National Society for Medical Research is a special collar bearing a silver plate with an inscription identifying Big Ben as Research Dog Hero of 1958.

Miscellaneous . . . .

Excerpts from A.M.A. Planning Conference in the Field of Aging, September 13-14, 1958.

The problems confronting American medicine are many and complicated. While it has always been true, more and more these problems seem to enunciate themselves in terms which require concerted action for coordinated approaches by the individual physician and organized medicine at all levels.

The time arrived a few years ago for organized medicine to devote more thought and action to the political and socio-economic phase of medicine. The physician should not be like the ostrich hiding his head in the sand, while those people who always want something for nothing and do-gooders unite with those of socialistic ideas and try to enforce them on others by concerted congressional action.

The busy physician is prone to forget that each of these measures enacted bring Socialized Medicine just a step nearer and I believe that unless some drastic action is taken immediately the Forand Bill will pass this Congress. The medical profession seems not to worry too much until such a bill is ready to pass, then they arrive too late and with too little to prevent the passage.

The medical profession and the voluntary health insurance agencies realize that something has to be done to furnish care and medical aid to our aging citizens over 65 years of age with reduced incomes and modest resources. Voluntary health insurance plans must be inaugurated *immediately* that will be acceptable both to the recipients and the medical profession. The medical profession must continue to assert its leadership and responsibility for assuring adequate medical care for this group of our citizens. The American Medical Association, the constituent and component medical societies, and physicians should expedite the development of effective voluntary health insurance for the above group with modest resources or low family incomes. The physician should agree to accept a level of compensation as full payment for medical services rendered to this group which will permit the development of such insurance at a premium rate that these aging citizens can afford to pay.

The American Medical Association's responsibility in any medical problem is to develop broad policies and to offer leadership. These policies must be practical and capable of adaptation to the needs of the individual state and counties.

The state medical societies, standing as they do in a middle position, are important keys to an effective approach to the problem of the aged or any other problem. The state society can adopt the policies enunciated nationally and adapt them to the circumstances of their own state. State societies have a major responsibility for keeping informed as to what non-medical groups are doing and for representing medicine's viewpoint with such groups. As we come close to the grass roots, such liaison becomes increasingly important.

What can physicians do to help the financing problem?

1. Make it possible for insurers to offer benefits more in keeping with health care costs.
2. Provide a basis upon which purchasers of insurance can select realistic levels of benefits.
3. In the event that co-insurance is involved, it should be possible for the subscriber or policyholder to plan, in advance, the extent of his participation in costs.

Expensive diagnostic methods and therapy should be altered to the limit compatible with good medical care. Overutilization of diagnostic techniques and therapeutic agents, always undersirable, is particularly significant today because of cost. We should cooperate with the insurers by reducing hospital admissions and stay. Every patient who is sent to a hospital for a diagnostic procedure, which could have been done in the office increases the cost of medical care.

Aging is one of the developmental phases in the life span of human beings. The aging or the aged are people in a certain period of life and, as people, have the same qualities and needs that people at any life period have. They have some needs as the child has, the young adolescent and adult, the basic needs of being wanted, of being loved, of being needed, of being productive, of being part and parcel of their environment, and belonging to a larger order of things.

A significant number of persons 65 and over are not indigent. True, their incomes may be less than formerly and their savings may be diminished. Many are retired. Their health or medical care needs in many instances are somewhat different from those who

are younger and still in active employment. I feel that the vast majority of our senior citizens want to feel independent. Moreover, they want to pay their own way. To meet these circumstances and to assist them in planning payment for their medical care, physicians through their medical societies could make special arrangements, including reduced fees where necessary or desirable.

A six point program which offers the solid, positive groundwork for the solution of the many-sided geriatric problem must:

1. Promote health maintenance and restorative services.

2. Encourage the training of personnel and the development of facilities for the care of the aged.

3. Cooperate in developing community programs for senior citizens.

4. Expand medical and socio-economic research in reference to aging and the aged.

5. Improve methods of financing health care for the aged.

6. Inspire a coordinated program which will seek public acceptance of a proper perspective toward older citizens.

Whoever, we are, professional men or business men, we all share the social obligation of giving aged people a chance to live a productive life. Because a person reaches an age of 65, 62 or 60 with his capabilities and his desire for productive work still alive and strong, such a person should not be fenced apart from everyone else by an artificial barrier, either for his own sake, or for the sake of economy. Ability backed by years of experience, by a deeper knowledge of living, and by the wisdom of human problems is worth saving. By the same token, the person of advancing years has the social obligation to continue to contribute both to his own welfare and to the economy.

W. Linwood Ball, M.D.

Editor's Note: Dr. Ball is vice-president of the American Medical Association and also a delegate from The Medical Society of Virginia.

Putting a Publication "To Bed"

Ever stop to consider how much work is involved in getting out a magazine? This may give you an idea.

Regardless of its size, every magazine consists of a bunch of separate articles or stories, each theoretically based on what is commonly known as an idea.

It is popularly supposed that such ideas leap nimbly from the mind of the editor. Occasionally they do. More often, however, the idea is the brainchild of some struggling writer who, faced with a deadline and a blank piece of paper, must create something out of nothing in no time flat.

In addition to this simple requirement, the writer is expected to dig, delve, probe, and come up with a batch of interesting facts. Even if they are dull as dishwater, he is supposed to make them *sound* interesting. If he succeeds, he is sometimes given a byline.

Once the writer has painfully whittled his idea into finished form. it is subjected to another long and arduous process known as putting the publication "to bed."

This process is carried out by a group of unsung heroes generally described as artists, photographers, engravers, typesetters, proofreaders, make-up men, printers, and bindery workers. These gentlemen are usually anonymous but their jobs have the advantage of being conducted during normal working hours. This allows them to have dinner with their families, a privilege not always shared by the writer.

The second step in transforming the idea into finished form falls on the artist or layout man, who arranges the text to fit the space and decides upon the illustrations to be used and where they shall be placed. Frequently, this genius also supervises the photographer. When drawings are used instead of photographs, the artist also had the pleasure of drawing them.

The artwork and photos then go to an engraver.

The engraver's craft is an old an honorable one but too technical to explain here. Suffice it to say that making an engraving takes anywhere from several hours to several days, depending upon the engraver's disposition and the amount of work in his shop. His disposition frequently proves the determining factor.

While the engraver is performing his miracles, the type is set by a typographer. Some is set by machine and some by hand. Proofs are then pulled and corrected by scholarly printing company em-

ployees known as proofreaders. In addition to having an eagle eye, they must also know how to spell every word in the dictionary.

Next, the type and engravings are locked up in a big metal form by a make-up man, who must see that everything fits together as shown on the layout. Sometimes this can't be done, cold metal being an obstinate thing, and the writer and layout man are called on to cut out some of the words or alter the layout so the masterpiece will fit the space. This is one reason why writers have ulcers and some layout men are prone to strong drink.

At this stage the locked-up form is ready to go to press. This is known as "putting the publication to bed." Once it has gone to bed, all concerned breathe a sigh of relief. All, that is, except the pressmen and the people in the bindery, who are supposed to see that the printing presses produce exactly the right colors and that the pages are folded and stitched in the order intended.

Of all the people involved in these procedures, probably those deserving the most sympathy are the writer, the typographer, and the proofreader. They *have* to read the stuff! Fortunately for the rest—they *don't*. A blessing shared, it might be added, by the gentle reader, who can pass up the whole caboodle with complete unconcern for all the time and effort it took to put the publication "to bed."—*Tennessee Progress*

Values of Autopsy

Autopsy, "the operation no one talks about," should be talked about—long before there is any need for it. Every family should discuss the question of autopsy and decide how it feels about the operation, thus simplifying the decision when a family member dies. This recommendation was made in an article in the February Today's Health, published by the American Medical Association.

Autopsy can "bring peace of mind to the patient's family and the gift of life itself to future generations." Yet many persons object to post-mortem examinations. Their objections are often based on misconceptions.

There is no fee for performing an autopsy. It can be performed in less than two hours, and will not, as many persons think, delay the funeral.

There is little fact to substantiate the statement that autopsy is against a person's religion. The article quoted Protestant and Roman Catholic leaders as saying there is no objection to autopsy in their churches. While Orthodox Judaism forbids autopsy, Reform Judaism does not.

Another objection is "The patient has suffered too much already." This attitude expresses the feeling that the patient still exists and is capable of feeling pain.

Three reasons why post-mortem examinations are important were cited. They are:

—Some diagnoses cannot be made by observation. Tumors of the brain, for example, may spread to the lung, but the location of the primary lesion can't be demonstrated without autopsy.

—For research purposes. Correct diagnosis still remains the most difficult and fundamental part of a doctor's job. Whatever his field of specialization, there is perpetual interest in research, and autopsy is one of the most valuable aids.

—To find an explanation for symptoms (often coincidental) which do not fit in with the patient's primary disease.

Through autopsy, a doctor may learn how to prevent certain diseases from recurring within a family, thus prolonging life expectancy. Autopsy may also explain why a person died and thus relieve a family member's mind. And finally it may provide information of value in the advancement of general medical knowledge.

Woman's Auxiliary....

President.....Mrs. Charles A. Easley, Danville
President-Elect.....Mrs. Walter A. Porter, Hillsville
Vice-Presidents.....Mrs. George K. Brooks, Richmond
Mrs. James M. Moss, Alexandria
Mrs. W. A. Eskridge, Parksley
Recording Secretary...Mrs. Robert B. Keeling, South Hill
Corresponding Secretary.....Mrs. J. J. Neal, Danville
Treasurer.....Mrs. Wyndham B. Blanton, Richmond
Publication Chairman..Mrs. Custis L. Coleman, Richmond
Directors.....Mrs. J. R. St. George, Portsmouth
Mrs. Lee S. Liggan, Irvington
Mrs. Maynard Emlaw, Richmond

Richmond.

In December, the gavel was silent and all business was laid aside as Auxiliary members met for our annual Christmas party, held this year at the home of Mrs. William T. Moore. The oustanding decorations, under the supervision of Mrs. F. Elliott Oglesby, and Richmond's big snow of the same date combined to set the mood for the Christmas season. Toys were collected for distribution to the City Welfare Department.

Our January meeting was held in Windsor Farms at the beautiful new Headquarters Building of The Medical Society of Virginia. All of us who had not already been there were eager to see the new building, and we heard many compliments on the lovely bright decorating.

Our special guests were Mrs. Charles A. Easley, Jr., State President, and Mrs. Walter A. Porter, President-Elect. Mrs. Easley reviewed for us the highlights of her trip to the A.M.A. Auxiliary meeting, where medical legislation before Congress, highway safety, and the importance of AMEF were emphasized.

The final figure of our Auxiliary's contribution to Sheltering Arms Hospital has reached $2,573.20. The Auxiliary expressed special thanks to Mrs. Isadore Zfass for her splendid work on the house tour by which this money was raised. In addition, approximately $8000.00 worth of drugs have been collected since June for donation to Sheltering Arms.

MRS. J. HENRY HAWKINS

Northampton-Accomac.

The Auxiliary to the Northampton-Accomac Medical Society held its first meeting of the year on January 13th at the home of Mrs. J. Fred Edmonds, Accomac, with nineteen members and one guest present. Mrs. Raymond G. Brown, president, presided.

The sum of twenty-five dollars was given to the Leigh-Hodges-Wright Memorial Fund as part of Doctor's Day observance. Donations were also given to various funds for each county and to the Student Loan Fund. Plans for the observance of Doctor's Day, to be held at the home of Dr. and Mrs. H. L. Denoon, Jr., on April 4th, were discussed.

CATHERINE TROWER (Mrs. Holland)
Chairman, Press and Publicity

No Margin for Error

The American Medical Association and the American Hospital Association released on February 4 a new film on hospitals and the law. The film, NO MARGIN FOR ERROR, was previewed by presidents and executives of allied hospital associations meeting at the midyear conference of the American Hospital Association.

NO MARGIN FOR ERROR is one in a series of medicolegal films produced by The Wm. S. Merrell Company, pharmaceutical manufacturers. It presents one of the most pressing current problems in legal medicine, the cause and effect of human mistakes in the complex system of the modern hospital. Skillfully and candidly, case histories deal with major causes of in-hospital professional liability action.

Mix-up in patient identification, mistakes in blood bank procedure, and error in medication dosage are examples of problems the film reveals. It reports, based upon a recent study, that 45% of all medication errors occur as a result of mistakes in patient identification.

The importance of the operating room sponge count procedure is demonstrated. One sees how 60-90 seconds can often make the difference between a correct count or a mistake and possibly legal action.

NO MARGIN FOR ERROR points the way for active, thoughtful cooperation between medical and administrative staffs of the hospital. Through this film the A.M.A. and A.H.A. show how a large number of incidents caused by human error can be effectively reduced.

NO MARGIN FOR ERROR is a 16 mm. black and white optical sound film, running time, 30 minutes. Prints are available for loan from The Wm. S. Merrell Company, Cincinnati 15, Ohio, the American Medical Association or the American Hospital Association.

Book Announcements....

Books received for review are promptly acknowledged in this column. In most cases, reviews will be published shortly after the acknowledgment of receipt. However, we assume no obligation in return for the courtesy of those sending us same.

Clinical Obstetrics and Gynecology. Volume 1, Number 2. Toxemias of Pregnancy. Edited by Louis M. Hellman, M. D. Fibromyomas of the Uterus. Edited by Robert A. Kimbrough, M. D. A Quarterly Book Series. Paul B. Hoeber, Inc., New York. 1958. 250 pages. Price

Therapeutic Exercise. Edited by Sidney Licht, M. D., Honorary Member, British Association of Physical Medicine; etc. Third Volume of Physical Medicine Library. Elizabeth Licht, Publisher, New Haven, Conn. 1958. xiv-893 pages. Illustrated. Price $16.00.

Negroes and Medicine. By DIETRICH C. REITZES. Published for The Commonwealth Fund by Harvard University Press, Cambridge, Mass. 1958. xxxi-400 pages. Price $7.00.

Cold Injury, Ground Type. Medical Department, United States Army. By COLONEL TOM F. WHAYNE, MC., USA (Ret.), Professor of Preventive Medicine, School of Medicine, University of Pennsylvania; and MICHAEL E. DeBAKEY, M. D., Professor of Surgery and Chairman of the Department, Baylor University College of Medicine, Houston, Tex. Prepared under the direction of Major General S. B. Hays, The Surgeon General. United States Army. Editor in Chief, Colonel John Boyd Coates, Jr., MC.; Associate Editor, Elizabeth M. McFetridge, M. A. xxi-570 pages. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price $6.25.

Hormone Production in Endocrine Tumours. Ciba Foundation Colloquia on Endocrinology. Volume 12. Editors for the Ciba Foundation, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Maeve O'Connor, B.A. Little, Brown and Company, Boston. 1958. xii-351 pages. With 58 Illustrations. Price $9.00.

Epilepsy. By MANFRED SAKEL, M.D. With a Preface by Otto Poetzl, Professor Emeritus University and Clinic of Vienna. Philosophical Library, New York. 1958 xxxvi-204 pages. Price $5.00.

Neurological Basis of Behavior. Ciba Foundation Symposium. In Commemoration of Sir Charles Sherrington, O.M., G.B.E., F.R.S., 1857-1952. Editors for the Ciba Foundation G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Celcilia M. O'Connors, B.Sc. Little, Brown and Company, Boston. 1958. xii-400 pages. With 109 illustrations. Price $9.00.

Clinical Obstetrics and Gynecology. Volume 1, Number 3. Symposium on Abnormal Uterine Bleeding. Edited by John I. Brewer, M.D. A Quarterly Book Series. Paul B. Hoeber, Inc., New York. 1958.

Water and Electrolyte Metabolism in Relation to Age and Sex. Ciba Foundation Colloquia on Ageing. Volume 4. Editors for the Ciba Foundation G. E. W. Wolstenholme, O.B.E., M.A., B.Ch., and Maeve O'Connor, B.A. Little, Brown and Company, Boston. 1958. xii-327 pages. With 85 illustrations. Price $8.50.

What We Do Know About Heart Attacks. By JOHN W. GOFMAN, M.D., Professor of Medical Physics, University of California, Berkeley. G. P. Putnam's Sons, New York. 1958. xi-180 pages. Price $3.50.

Schizophrenia. By MANFRED SAKEL, M.D. With a foreword by Professor Hans Hoff, Head Department of Neurology and Psychiatry, University of Vienna. Philosophical Library, New York. 1958. vii-335 pages. Price $5.00.

Emergency War Surgery. U. S. Armed Forces Issue of NATO Handbook Prepared for Use by the Medical Services of NATO Nations. United States Department of Defense. xi-411 pages. Illustrated. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price $2.25.

The Doctor Business. By RICHARD CARTER. Doubleday & Company, Inc., Garden City, N. Y. 1958. 283 pages. Price $4.00.

Men, Molds, and History. By FELIX MARTI-IBANEZ, M.D., Professor and Director of the Department of the History of Medicine, New York Medical College; Flower and Fifth Avenue Hospitals, New York; and Editor-in-Chief of MD Medical News magazine. MD Publications, Inc., New York. 1958. 114 pages. Cloth. Price $3.00.

The Birth of Normal Babies. By LYON P. STREAN, M.Sc., Ph.D., D.D.S., F.A.P.H.A., Consultant, Norristown State Hospital and Montgomery Hospital, Norristown, Pa. Twayne Publishers, New York. 1958. 194 pages. Cloth. Price $3.95.

Fracture Surgery. A Textbook of Common Fractures. By HENRY MILCH, M.D., Emeritus Attending and Consulting Orthopedic Surgeon, Hospital for Joint Diseases, New York. And ROBERT AUSTIN MILCH, M.D., Assistant Resident Surgeon, Peter Bent Brigham Hospital, Boston. With a Chapter on Anesthesia by Herbert D. Dubovsky, M.D., Director of Anesthesiology, Easton Hospital, Easton, Pennsylvania. A Hoeber Harper Book. Paul B. Hoeber, Inc., New York. 1959. x-470 pages. With 671 illustrations. Cloth. Price $17.50.

Editorial....

Physicians in Politics

THE JANUARY ISSUE of *The New Medical Materia* lists the number of physicians serving in the legislatures of 20 states. Conditioned as we are in Virginia to the frequent election of physicians to public office, it comes as a surprise to learn that less than half of the states have physicians in their current legislatures. Even more remarkable is the fact that Virginia, with six doctors serving in The General Assembly, leads all other states in number and our representatives constitute more than one-sixth of all state legislators in the United States. This means we have eight times our share,

Politically minded physicians appear to be a Southern specialty, for no less than 24 of the 35 physicians live south of the Mason and Dixon line. Tennessee and North Carolina have three physicians each while the State of New York and all of New England cannot boast a single medical legislator. It is true that Pennsylvania has two physicians at Harrisburg but Ohio, Illinois and California combined can muster only one medical lawmaker.

If there is a ready explanation for this curious situation it does not come to mind immediately. It may mean that Southerners like their physicians and show their affection and confidence in them by electing them to public office. Northerners on the other hand are probably more prone to be impressed by outward evidence of material success and this in turn may prompt them to vote for business men and lawyers. A second and possibly more valid reason is that politics, as practiced in the North, may have less appeal to the physician than it has in the South.

Be that as it may, it is a healthy situation to have medical representation in lawmaking circles. Public health measures may be dealt with more intelligently and medical school appropriations may be approached more factually if physicians participate in the debate. The physician's greatest contribution, however, may lie in his understanding of human nature and an ability to translate this into constructive legislation.

H.J.W.

An A.M.A. Service

IN THE MAZE of medical literature the special reports of the various councils of the American Medical Association stand out as authoritative statements of present day medical thought. The reports are prepared deliberately and represent a consensus of informed medical opinion.

Two such reports on diverse subjects have been published this year and might be cited as worthwhile.

The Council on Food and Nutrition authorized the publication of a special report on Vitamin Preparations. The distinction was made between the Minimum Daily Requirements of Nutrients and the Recommended Dietary Allowances, the former being the amount necessary to prevent symptoms of deficiency and the latter being the amount of nutrients that will maintain good nutrition. There is a discussion of the use of vitamins as dietary supplements, with a listing of the specific and comparatively few instances where this use is indicated. Vitamins as therapeutic agents are briefly reviewed with emphasis on the point that the decision to employ vitamin preparations in therapeutic amounts clearly rests with the physician. Appropriate mention is made of the potential toxicity of vitamins A and D. The report does not list the amount of money spent annually by the American people but its final sentence wisely reads, "It is sound judgment to emphasize repeatedly that properly selected diets are the primary basis for good nutrition."

Another significant report is that of the Commission on Medical Care Plans published in a Special Edition of the Journal of the American Medical Association on January 17, 1959. This is a 97 page statement compiled under the chairmanship of Dr. Leonard Larson after a 3 1/2 year study by outstanding authorities. The work was divided between three committees. The first considered a group of miscellaneous and unclassified plans, the largest of which was that of the United Mine Workers. The second committee reviewed Blue Shield and private insurance programs and the third industry programs, including Workmen's Compensation. The report contains a wealth of factual material regarding the operation of these plans. Of particular interest to physicians is the discussion of the effect of these plans on the quality of medical care, on the physician-patient relationship, on the preservation of free choice of physicians, on the cost of medical care and on medical ethics in general. As Dr. Larson points out in his preface, the report recommends possible solutions to perplexing problems and also raises questions which are yet to be answered.

ENNION S. WILLIAMS, M.D.

Society Activities....

Annual Spring Clinic.

The Norfolk County Medical Society will hold its Annual Spring Clinic on March 21st at the Center Theatre, Norfolk.

The program will be: Endocrine Aspects of Abnormal Uterine Bleeding by Dr. Georgeanna Seegar Jones, Assistant Professor, Department of Gynecology, Johns Hopkins University and Hospital; Diagnosis and Treatment of Renal Hypertension by Dr. Eugene F. Poutasse, Staff Urologist, Cleveland Clinic Foundation and Frank E. Bunts Institute; Report on a Trip to Russia by Dr. Mark M. Ravitch, Associate Professor of Surgery, Johns Hopkins University School of Medicine, Surgeon to the Johns Hopkins Hospital, and Surgeon-in-Chief at the Baltimore City Hospitals; Current Concepts of the Etiology and Pathogenesis of Cancer by Dr. David E. Smith, Professor of Pathology, University of Virginia; Some Aspects of the Chemotherapy of Lymphoma by Dr. Byrd S. Leavell, Professor of Internal Medicine, University of Virginia; Surgical Treatment of Metastatic Cancer by Dr. Lemuel Bowden, Assistant Attending Surgeon, Gastric and Mixed Tumor Services, Memorial Hospital, New York City; and Radioisotopes in Clinical Medicine by Dr. Richard H. Chamberlain, Professor of Radiology, University of Pennsylvania School of Medicine and Graduate School of Medicine.

Northern Virginia Medical Council.

At a recent meeting the Council, representing Northern Virginia doctors who are members of the Alexandria, Arlington and Fairfax Medical Societies, elected Dr. Thomas E. Haggerty, Falls Church, as president Dr. James Moss, Alexandria, vice-president; Dr. Carl Parker, Falls Church, secretary; and Dr. Robert Norment, Arlington, treasurer.

Northampton County Medical Society.

At a meeting of this Society on January 29th, Dr. John R. Mapp, Nassawadox, was elected president; Dr. Joseph E. Gladstone, Jr., Exmore, vice-president; and Dr. William F. Bernart, Nassawadox, secretary-treasurer. Dr. William J. Sturgis, Jr., was named a member of the Board of Censors of the Society; and Dr. Sturgis, Sr., representative to the Board of Trustees of the Northampton-Accomack Memorial Hospital.

Dr. Lewis Gillespie of the National Heart Institute at Bethesda, was guest speaker. He outlined a recent advance in the treatment of hypertension and discussed some of the biochemical aspects of the action of this new drug.

The Mid-Tidewater Medical Society.

Held its regular quarterly meeting at West Point on January 27th. The president, Dr. Harold W. Felton, presided. The following program was presented: The Medical Management of Pulmonary Infections by Dr. John Guerrant; The Surgical Management of Pulmonary Infections by Dr. George Minor; Dysphagia by Dr. James C. Respess; The Surgical Management of Dysphagia by Dr. Minor; Office Examination for Cancer Cells by Dr. Clifford Fox. All speakers are from the Medical School of the University of Virginia.

Southwestern Virginia Medical Society.

The spring semi-annual meeting of this Society will be held in Marion on April 16th.

Petersburg Medical Faculty.

Dr. Milton Ende has been elected president of the Faculty, with Dr. Kirby T. Hart as vice-president and Dr. Alvin Cohen, secretary-treasurer.

The Tri-State Medical Association

Will hold its annual meeting in Winston-Salem, North Carolina, at the Robert E. Lee Hotel, March 16-17. There will be panels on Gastroenterology, Dermatology, Psychiatry, Cardiology and Trauma. Individual papers will be on Urology, Infertility, Hypnosis in Pregnancy and Radiation Hazards. All physicians are invited to attend this meeting.

Dr. William R. Jordan, Richmond, is president, and Dr. R. B. Davis, Greensboro, North Carolina, secretary-treasurer.

News . .

New Members.

Since the list published in the February issue of the Monthly, the following new members have been admitted into The Medical Society of Virginia:

Thomas Rector Bass, M.D., Tazewell
Charles Patterson Cardwell, III, M.D., Richmond
Enda Anthony Coogan, M.D., Annandale
Eugene Micheaux Evans, Jr., M.D., Danville
William Noel Gordge, M.D., Roanoke
Panos George Gregoriou, M.D., Clintwood
Luther J. Hamlett, M.D., Roanoke
Donald Thomas Hensley, M.D., Vienna
Dietrich Walter Heyder, M.D., Norfolk
Cecil Hougie, M.D., Charlottesville
Francis Joseph Januszeski, M.D., Richmond
Frank Mitchell Johnson, M.D., Roanoke
Harry Isaac Johnson, Jr., M.D., Roanoke
Harold M. Johnson, M.D., Falls Church
William Ellis Josey, M.D., Norfolk
Edward Francis Patrick Kearney, M.D., Mathews
Charles Bennett Marshall, M.D., Martinsville
James Hawver McVey, M.D., Richlands
John Henry Moling, III, M.D., Winchester
Leslie Lawrence Peters, M.D., Arlington
Herman Howard Pinkerton, Jr., M.D., Abingdon
Walton Eugene Stevens, M.D., Charlottesville
Anton Strohhofer, M.D., Richmond
John David Varner, M.D., Roanoke
Joseph M. Vilallonga, M.D., Falls Church
William Rice Warren, M.D., Orange
Herbert L. Weinberg, M.D., Suffolk
William Franklin Weller, M.D., Roanoke
Francis Edward Winslow, Jr., M.D., Va. Beach

Dr. William H. Barney,

Lynchburg, has been named "Outstanding Young Man" of the year by the Junior Chamber of Commerce. He is the eleventh recipient of the annual distinguished service award and the first physician to be so honored.

Dr. Clifford G. Gaddy

Has been named Danville's outstanding young man for 1958 by the Junior Chamber of Commerce. The honor was presented to him as "a father of six, a lay preacher, a skilled physician and the president of the Danville Little League Baseball Association".

Dr. Robert D. Shreve,

Altavista, has been named the third annual "Man of the Year" for outstanding service to the community. The award was presented at the annual banquet of the Altavista Chamber of Commerce.

Medical Cruise to the Caribbean.

The Duke University Medical Center will have its Fourth Medical Cruise to the Caribbean, sailing from New York on April 2nd and returning April 14th, and sailing from Wilmington, North Carolina on the 3rd, returning on the 13th.

Those interested should contact the Director of Postgraduate Medical Education, Duke University Medical Center, Durham.

Dr. Bohannon Honored.

Dr. Alvah P. Bohannon, dean of Halifax County physicians, was honored guest of the Ruritan Club at its meeting in January. He has been practicing in Halifax for more than fifty-two years and has his office in Virgilina. Dr. Bohannon recalled that when he first saw Virgilina, it was a roaring mining town. Gold has been found in the surrounding countryside and miners from all over the country poured in. There was a bar on virtually every corner and the street resembled those of the traditional Wild West town.

Evening Medical Lecture Program.

The spring programs of the Evening Medical Lecture Series and the Research Society of the University of Virginia, School of Medicine, are held in the auditorium of the medical school and, with the exception of the meeting on March 24th, all will be presented at 8:00 P.M. All physicians are cordially invited to attend any or all of these presentations.

The programs started on February 2nd, and those scheduled for March are: March 16—The Development and Application of Anticonvulsant Drugs by Dr. H. Houston Merritt, Acting Dean and Professor of Neurology, College of Physicians and Surgeons, Columbia University and Director, The Neurological Institute, Presbyterian Hospital, New York.

March 23—The Staige Davis Blackford Memorial Lectureship—The Effect of Adrenergic Amines on the Cardiovascular System by Dr. Daniel T. Watts, Chairman, Department of Pharmacology, University of West Virginia Medical School, Morgantown.

March 24 (4:00 P.M.)—The Squibb Centennial Lecture—The Function of Coenzyme A in Fat and Lipid Metabolism by Dr. Feodor Lynen, Director, The Max Planck Institute for Cell Chemistry, Munich, Germany.

April 6—The Phi Chi Lectureship—Subject to be announced by Dr. H. William Scott, Jr., Chairman, Department of Surgery, Vanderbilt University School of Medicine, Nashville, Tennessee.

April 13—Clinical and Experimental Observations on the Cortisones by Dr. Philip S. Hench, The Mayo Clinic, Rochester, Minnesota.

The programs by the Research Society of Virginia are:

March 9—Phenol Sensitive DPNH Oxidase in Rat Uterine Homogenates by Miss Mary Louise Stephens; The Effect of Specific Antibody Upon the Course of Herpes Simplex Infections in Tissue Culture by Dr. Clayton E. Wheeler, Jr.; and Experimental Production of Dissecting Aneurysms of the Aorta by Drs. Frank S. Blanton, Jr., William H. Muller, Jr., and W. Dean Warren.

April 20—Serum Cholesterol Studies in Healthy Individuals—Dr. Fred D. Robinson and Amory M. Sommaripa; Re-Evaluation of the Hemodynamics of Cirrhosis and Portal Hypertension by Drs. W. Dean Warren and William H. Muller, Jr.; and Total Circulating Sodium and Hyponatremia by Frank J. Borsody, Drs. Nuzhet Atuk, Julian R. Beckwith, and J. Edwin Wood, Jr.

Dr. D. W. Scott, Jr.,

Has been installed as president of the Fredericksburg Kiwanis Club. Dr. T. Stacy Lloyd is a director of the Club.

The Arlington County Health Department,

Of which Dr. Ralph G. Beachley is the Director, has again been approved by the Council on Medical Education and Hospitals of the American Medical Association for an additional two years of residency training in public health. This department is one of thirty-nine in the nation which is so designated and provides training for medical health officers wishing to enter the field of public health and qualify for the American Board of Preventive Medicine and Public Health.

Virginia Trudeau Society.

Respiratory diseases, including lung cancer, unusual forms of pneumonia, and tuberculosis in children, will be discussed at the annual meeting of the Virginia Trudeau Society. The meeting will open at 2:00 P.M., April 8, in the Hotel Jefferson in Richmond.

Topics will reflect the recent decision by the National Tuberculosis Association and the American Trudeau Society to adopt the entire field of respiratory disease for expanded activity. While the NTA retains the eradication of tuberculosis as the objective of first importance, acute respiratory infections will claim attention of TB associations in those areas where the tuberculosis problem does not warrant the full-time effort of a vigorous voluntary agency program.

Selected for the VTS program to speak on "The Present Status of Cytologic Diagnosis of Lung Cancer" is Dr. Leopold Koss, Director of Cytology and Associate Pathologist at Memorial Hospital in New York City, and Associate Professor of Pathology, Sloan-Kettering Division, Cornell University Medical School.

Dr. Oscar Auerbach, Chief of Laboratory Services, Veterans Administration Hospital, East Orange, New Jersey, will speak on "Carcinoma-in-Situ and Its Significant Changes."

Dr. Sydney Jacobs, physician of New Orleans and President-Elect of the Southern TB Conference, is to discuss "Unusual Forms of Pneumonia and Diagnosis and Treatment Thereof."

Dr. Edwin L. Kendig, Richmond pediatrician and director of the Child Chest Clinic at Medical College of Virginia, will present, "Tuberculosis in Children Contracted from Mothers with 'Arrested' TB."

The medical session will be followed by a social hour and dinner at which Dr. Daniel Jenkins, President of the American Trudeau Society and Professor of Medicine, Baylor University, Texas, will give the keynote address.

All physicians—general practitioners, chest specialists, internal medicine, and others—are invited to attend the meeting. They need not be members of the Trudeau Society. Reservations should be made directly with the hotel.

Staff Appointments.

Dr. James H. Powell has been elected chairman of the Medical Staff of the Petersburg General Hospital, succeeding Dr. Julius H. Hopkins. Vice chairman is Dr. Munford R. Yates and secretary is Dr. David B. Drewry, with Dr. Alvin Cohen as alternate secretary. Chiefs of sections are Dr. James D. Mason with Dr. William S. Sloan as alternate, internal medicine; Dr. Herman W. Farber, pediatrics; Dr. James A. Thweatt, general practice; Dr. Clyde W. Vicks, Jr., general surgery; Dr. Francis R. Payne,

Jr., obstetrics; Dr. Hopkins, surgical specialties; and Dr. Simon Russi, diagnostic service.

Dr. George H. Smith has been elected president of the Medical Staff of Winchester Memorial Hospital with Dr. Frank E. Tappan vice-president; Dr. Robert S. Boyd secretary; and Dr. M. D. Custer, Jr., treasurer.

Dr. Fred C. McCall has been elected chief of the medical staff at Bristol Memorial Hospital, succeeding Dr. William Credle. Dr. Talmadge Buchanan is vice chief; Dr. Russell Frankhouser, secretary-treasurer; Dr. Frank Sutterlin, chief of surgery; Dr. Joe Mitchell, chief of obstetrics and pediatrics; and Dr. Fred Vance, Jr., chief of medicine.

Child Psychiatry and Neurology Lectures.

A series of lectures are being held at the Lynchburg Training School and Hospital in the fields of child psychiatry and child neurology by professors in residence at the School and Hospital. Lectures began in January, and subsequent speakers and lecture dates are as follows:

May 28-30—Child Psychiatry by Dr. Wilfred C. Hulse, New York City.

July 30-August 1—Child Neurology by Drs. Walter O. Klingman, The Titus Harris Clinic, Professor of Psychiatry and Neurology, The University of Texas, Galveston.

September 24-26—Child Psychiatry by Dr. Frederick H. Allen, Professor of Psychiatry, University of Pennsylvania Medical School, Philadelphia.

October 29-31—Child Neurology by Dr. Sidney Carter, Associate Professor of Neurology, Columbia University, New York.

November 19-21—Child Neurology by Dr. Paul M. Ellwood, Jr., Director of Inpatient Service, Elizabeth Kenny Institute, Minneapolis.

All physicians are invited to attend these lectures which have been made possible by a grant from the Smith, Kline and French Foundation. Further information may be obtained from Dr. Benedict Nagler, Superintendent, Lynchburg Training School and Hospital, Colony, Virginia.

American Academy of General Practice.

The 11th Annual Scientific Assembly of the Academy will be held in San Francisco, April 6-9. The scientific program will feature 28 prominent physician authorities. More than 100 scientific and 300 technical exhibits will be prepared. All meetings will be held in the Civic Auditorium.

Dr. Holland T. Jackson, Fort Worth, Texas, is president of the Academy. Dr. Fount Richardson, Fayetteville, Arkansas, is president-elect and will take office at the San Francisco meeting.

Dr. C. L. Riley,

A member of the Board of Directors of the Commercial & Savings Bank, Winchester, during the past five years, was elected Chairman of the Board at the meeting of stockholders in January.

Post-Graduate Day.

The Roanoke Memorial Hospital will hold its tenth annual Post-Graduate Day program on March 19th at the Hotel Roanoke. The meeting is open to interested physicians and is approved for Category One credit by the American Academy of General Practice. The program begins at 2:00 P.M., and is as follows: Pyelonephritis and Hypertension in Pregnancy Masquerading as Toxemia by Dr. Frank Finnerty, Georgetown University Medical School; Transaminase and Other Serum Enzyme Tests in Clinical Medicine by Dr. Felix Wroblewski, Cornell University Medical School; Functional Gastro-Intestinal Disease by Dr. Dwight L. Wilbur, Stanford University Medical School; and Experience with Transplantation of the Human Kidney and Renal Hypertension by Dr. Hartwell Harrison, Harvard Medical School.

Eye Bank Research Laboratory.

The Elbyrne G. Gill Eye and Ear Foundation announces the establishment of a research laboratory in conjunction with the Eye Bank and Sight Conservation Society of Virginia. The laboratory is prepared to make the dye test for Toxoplasmosis.

International Academy of Proctology.

The Eleventh Annual Convention of the Academy will be held in New York, April 5-9.

There will be special emphasis on anal and rectal panel presentations and on newer treatment methods. Eminent speakers from all parts of the country and abroad will present papers and motion picture demonstrations of their personal technics.

Physicians and their wives are cordially invited to attend the convention, whether or not they are affiliated with the Academy. For further information, contact Dr. Alfred J. Cantor, Executive Secretary, 147-41 Sanford Avenue, Flushing 55, L. I., New York.

The Southwestern Society of Nuclear Medicine

Will hold its fourth annual meeting at the Roosevelt Hotel in New Orleans, March 14-15.

Current Currents

A MEDICOLEGAL CONFERENCE, sponsored by AMA, will be held in Washington at the Mayflower Hotel on March 20-21. The program will be of interest to both physicians and attorneys, and component societies might wish to send representatives. Among the subjects to be covered are: Medical and Legal Problems Involved in Narcotic Addiction, Traumatic Neurosis, The Approach of Medicine and the Law to Contingent Fees, Res Ipsa Loquitur in Professional Liability Cases, Impartial Medical Testimony, and The Classic Method of Cross Examining an Expert Medical Witness. The Conference begins with registration at 12:00 Noon on Friday and will be concluded by 4:30 P.M. on Saturday.

THE CIVILIAN PHASE OF MEDICARE, according to reports from Washington, will cost between $90 and $93.6 million for the current fiscal year ending June 30. This is $21 million more than Congress approved. It is further reported that the Army and Air Force are able to shift funds from other accounts to make up for their Medicare shortages. The Navy, however, will probably have to submit a deficiency appropriation for approximately $6 million. A request for $89 million has been made for next year.

SIMPLIFIED CLAIM FORMS are covered in a booklet which has been mailed to every member of The Medical Society of Virginia. The booklet was prepared by the Health Insurance Council and contains forms designed for all types of health and accident insurance policies. The forms are being used by many insurance companies throughout the United States.

A number of inquiries concerning simplified forms have been received in recent months, and it is hoped that this booklet will provide the answers.

STATEMENTS FOR 1959 AMA DUES have been mailed from the State Office. These statements should not be confused with those for State Society dues which were mailed during the first week of January. It might be well to mention that AMA dues should be paid by June 1.

THE SPECIAL EDITION of the Journal of the AMA, dated January 17, should be read carefully by all physicians. The special edition contains a report of the Commission on Medical Care Plans, which was appointed by the Board of Trustees of the AMA in 1954. The report concerns itself with medical care plans in existence throughout the United States and deals with three broad areas of research: (1) the nature and meth-

od of operation of the various types of plans through which persons receive the services of physicians; (2) the effect of these plans on the quality and quantity of medical care; and (3) the legal and ethical status of the arrangements used by these plans.

INTEREST IN CIVIL DEFENSE may be increasing. According to the Director of the Office of Civil and Defense Mobilization, Americans are not as apathetic about the dangers of thermonuclear attack as is commonly supposed. He stated that over thirty million requests have been received for cards listing five things that every citizen should know should an attack occur. It was also mentioned that forty million copies of a "Handbook for Emergencies" have been distributed by Boy Scouts. Those desiring copies may secure them from local civil defense offices or from the Washington, D.C., Headquarters of OCDM.

COST OF MEDICAL AND HOSPITAL CARE is well covered in an editorial from the Dallas Morning News. It admits that during the last twenty years physicians' fees have increased 84 per cent. However, an automobile that cost $1,000 in 1938 now costs $3,500. It also mentions that haircuts have gone up 205 per cent, movie admissions 120 per cent, and baby shoes 171. The editorial tells of a plumber's wife who was rushed to the hospital for an emergency appendectomy. The total bill came to $148. The plumber then figured that the hospital would have paid in excess of $148 if it had hired three sets of plumbers on eight hour schedules with overtime figured on a twenty-four hour basis. Brought out also is the fact that the biggest factor in the rise of hospital costs is labor. It states that in a hospital where the average daily cost per patient is $28.81, hospital personnel alone accounts for $22 of that amount.

THE KEOGH-SIMPSON BILL has been favorably approved by the House Ways and Means Committee and apparently is headed for early floor action. The bill, as reported out of committee, is identical with the version which passed the House last year but died in the Senate.

This bill would allow self-employed, including physicians, to set aside 10 per cent of gross adjusted income, up to $2,500, when paid into retirement plans. The maximum to be set aside in any lifetime would be $50,000. Leading the campaign for enactment is the American Thrift Assembly, of which the American Medical Association is a member. It is reported that the bill is gaining new supporters in the Senate and may be acted on in that body this session.

MEDICAL SCHOOLS are finding it increasingly difficult to attract and retain competent faculty because of a lack of adequate financial resources. It has been learned that all 82 schools are confronted with a most serious teacher shortage which, apparently, is increasing. A recent report from the National Fund for Medical Education indicates that in 1957 there existed 333 faculty vacancies and in 1958 this number had increased to 622. The schools need the help of every physician if they are to remain free from federal control. Contribute now to the AMEF.

Obituaries....

Dr. Howard Russell Masters,

Prominent Richmond psychiatrist, died January 27th, at the age of sixty-four. He was a native of Fredericksburg and a graduate of the Medical College of Virginia in 1919. Dr. Masters was president of Tucker Hospital and associate professor of psychiatry and neurology at the Medical College of Virginia. He was a member of the Board of the Memorial Guidance Clinic and one of the organizers of the clinic. He had served as president of the clinic and also as acting director. Dr. Masters was appointed in 1953 to the college of electors for the Hall of Fame for Great Americans. He had been president of the Randolph-Macon Alumni Association and held an honorary LLD degree from the college.

Dr. Masters served in the medical reserve corps of the army in 1917-1919. He was a member of many professional organizations and had been a member of The Medical Society of Virginia for thirty-seven years.

His wife and four children survive him.

Dr. Sheppard Kellam Ames,

Councilor of The Medical Society of Virginia, died January 31st at his home in Cape Charles. He was sixty-three years of age and received his medical degree from the University of Virginia in 1925. Dr. Ames specialized in cardiology. He was with the Army in World War I, serving with Base Hospital 45. Dr. Ames was a charter member and first president of the Cape Charles Lions Club. He joined The Medical Society of Virginia in 1926, and was a member of the Council, representing the first district.

His wife, two sons and two daughters survive him.

Dr. William Harvey Whitmore,

Widely-known Norfolk physician, died January 30th. He was a native of Lynchburg and sixty-six years of age. Dr. Whitmore graduated in medicine from the University of Virginia in 1916 and had practiced radiology in Norfolk for the past twenty years. He served in the United States Naval Medical Corps and saw service in World Wars I and II, retiring as a Captain. Dr. Whitmore was a past president of the Radiological Society of Virginia and had been a member of The Medical Society of Virginia for twenty years.

His wife, two daughters and one son, Dr. W. H. Whitmore, Jr., survive him.

Dr. Mervin Wilbur Glover,

Alexandria, died January 9th, following a heart attack in his office. He was born in Sitka, Alaska, when his father was stationed there with the U. S. Public Health Service, and was fifty-one years of age. Dr. Glover graduated in medicine from the George Washington University in 1932. He served with the Army Air Corps during World War II and was promoted to the rank of major. He was a member of the Medical Society of Virginia.

He is survived by his wife and three daughters. Mrs. Glover is formerly a president of the Woman's Auxiliary to the Medical Society of Virginia.

Dr. Nicholas Flood Hix,

Prominent Wise County physician, died January 1st after a brief illness. He was eighty-two years of age and a graduate in medicine from the University of Virginia in 1900. Dr. Hix was recognized as the oldest active physician in Wise County where he had been practicing for nearly 58 years. He was not only active in the practice of his profession but was considered one of the most successful apple producers in Southwest Virginia. His orchards were started as a hobby more than fifty years ago and they now contain almost 10,000 trees. Dr. Hix was a member of The Medical Society of Virginia.

His wife and three daughters survive him.

Dr. Aaron W. Martin,

Hillsville, died August 30th. He was seventy-nine years of age. Dr. Martin was a Life Member of The Medical Society of Virginia, having joined in 1917.

Dr. Rawles.

On November 24, 1958, Dr. B. W. Rawles, Sr., died, age 88. He was next to the oldest member of the Academy and one of a dozen of the oldest graduates from the Medical College of Virginia.

Born in Nansemond County he received his education at the county schools, the Bethel Military Academy, and graduated from the Medical College of Virginia in 1897. After interning at the Old Dominion Hospital he began to practice in Richmond. Surviving him is his wife, four sons, one daughter and ten grandchildren. One of these sons, Benjamin Rawles, Jr., is a past president of this organization. He rapidly began to take his place in Richmond and was interested in many things. At the Medical College of Virginia he taught principles of surgery for many years. He was a communicant of St. Paul's Episcopal Church, a thirty-second degree Mason, and took his place in organized medicine We have many old men around on the retired list but Dr. Rawles practiced medicine up until a few weeks of his death.

Dr. Rawles was a type of a self reliant general practioner who approached his job with confidence and had good reason for that confidence. He was in no way a dilettante in what he attempted to do. Such a man loved humanity and combated its ills. He wanted to be the one to help. Obviously, if his interests were entirely in some specialized line that would deprive him of the opportunity of being near what ever would befall and to be needed was his desire. He could look any man in the eye and say "I am a physician, I may not know as much about surgery as my son but even there I know my way around. I am a practitioner of the Art of Medicine."

Times change and men change with them but knowing Dr. Rawles gave one an insight to a type that is fast vanishing. These men seem to guide themselves with the precept of "Hold fast to that which is good" and at the same time be always ready to accept a proven modern truth. They would then apply this truth to therapy. Research was not their field but it would probably be helpful to our conceit if we could compare the scientific technical success of our lives to the solid ethical attainments of theirs.

A man of this type was interested in everything and that carried him to the out-of-door and the fields and streams. It is often remarked how many of the true disciples of Aescalapius are fishermen.

When all the honors have been paid, can there be a higher epitaph than this? He loved the sick and the sick loved him.

Be It Therefore Resolved that this resolution be recorded in the minutes of the Richmond Academy of Medicine and that copies be sent to The Medical Society of Virginia and the family.

Arthur S. Brinkley, M.D.
Thomas W. Murrell, M.D.

Dr. Blanton.

Dr. Howson Wallace Blanton was born in Richmond, on February 9, 1892 and died in Richmond on December 12, 1958.

His mother, Elizabeth Wallace Blanton came from a distinguished Virginia family, and his father, Charles Armistead Blanton, of equally fine ancestry, distinguished himself as a leading practitioner of medicine in Richmond over a period of many years. These parents lived to rare old age and had the joy and satisfaction of observing the outstanding medical careers of their two sons.

Dr. Blanton attended the Glebe School in Richmond, and Hampden Sydney College, where he graduated with A.B. degree in 1912. While in school he was a member of the Convenantors, that fine boys organization of the Presbyterian Church, unfortunately now replaced by the multitudinous groups in the modern youth movement. He remained an earnest and devoted member of the First Presbyterian Church and was a Deacon for many years. In college, Dr. Blanton had a fine record as a student and leader. He was a halfback on the football team, and Captain his senior year, and was Captain of Hampden Sydney's second basketball team and an infielder on the baseball team. For the next year while teaching in the Armstrong High School of Richmond, he successfully coached the football team of John Marshall High School.

He studied medicine at the College of Physicians and Surgeons of Columbia University, where he graduated in 1917, after internship and residency at St. Luke's Hospital, New York City, he was associated with Dr. Blake at the American Ambulance Service in Paris during World War I, and was later a 1st Lieutenant in the U. S. Army Medical Corps.

He practiced internal medicine with his father and brother, Wyndham Bolling Blanton from 1918 to his death in 1958. He was an astute diagnostician, and an earnest, hard working doctor. The complete care of his patients was always his objective, this combined with his charming personality brought to him large numbers of people who were his patients and devoted friends. Dr. Blanton was interested in people and in helping them. One of his outstanding characteristics was the unhurried manner in which he displayed this interest and dispensed his aid. The result was a host of people made better by him, both physically and spiritually.

He was a member of the Richmond Academy of Medicine. The Medical Society of Virginia and the American Medical Association. He was Assistant Professor of Clinical Medicine at the Medical College of Virginia.

Socially he was a charming companion, he enjoyed golf, boating and fishing and was a member of the Commonwealth Club, Country Club of Virginia, Virginia Society of the Cincinnati and the Society of Colonial Wars.

He is survived by his wife, Janet Wicker Blanton who by training and interest shared his enthusiasm for medicine, and a daughter, Betty Blanton Cooke.

Those of us who were privileged to know him will feel a sense of gratitude for his friendship and of loss and grief at his death.

Therefore, Be It Resolved that the Richmond Academy of Medicine hereby expresses its sense of deep feeling of sorrow and regret at the passing of Dr. Blanton.

Be It Further Resolved that this resolution be spread upon the minutes of the Academy, a copy sent to his immediate family and one to the Journal of The Medical Society of Virginia.

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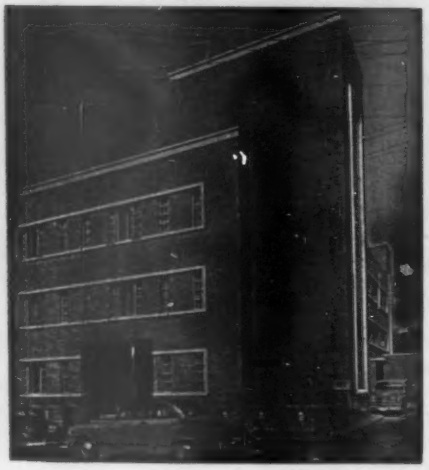

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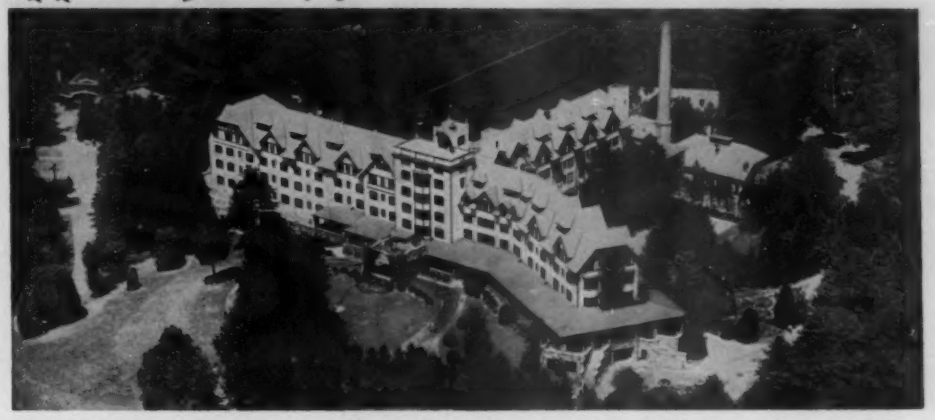

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The State Board of Medical Examiners of Virginia

The next meeting of the Virginia Board of Medical Examiners will be held at the Richmond Hotel, Richmond, Virginia, June 17, 1959. The examinations will be held in the Gray's Armory, June 18-20, inclusive. All applications and other documents pertaining to the examinations or to matters to be discussed by the Board must be on file in the Secretary's office on or before May 27, 1959. The Secretary of the Board is Dr. K. D. Graves, 631 First Street, S. W., Roanoke, Virginia.

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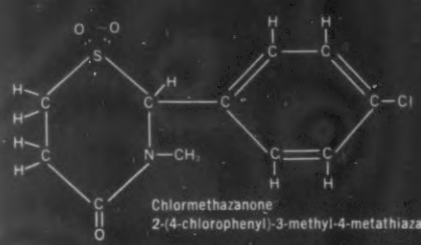

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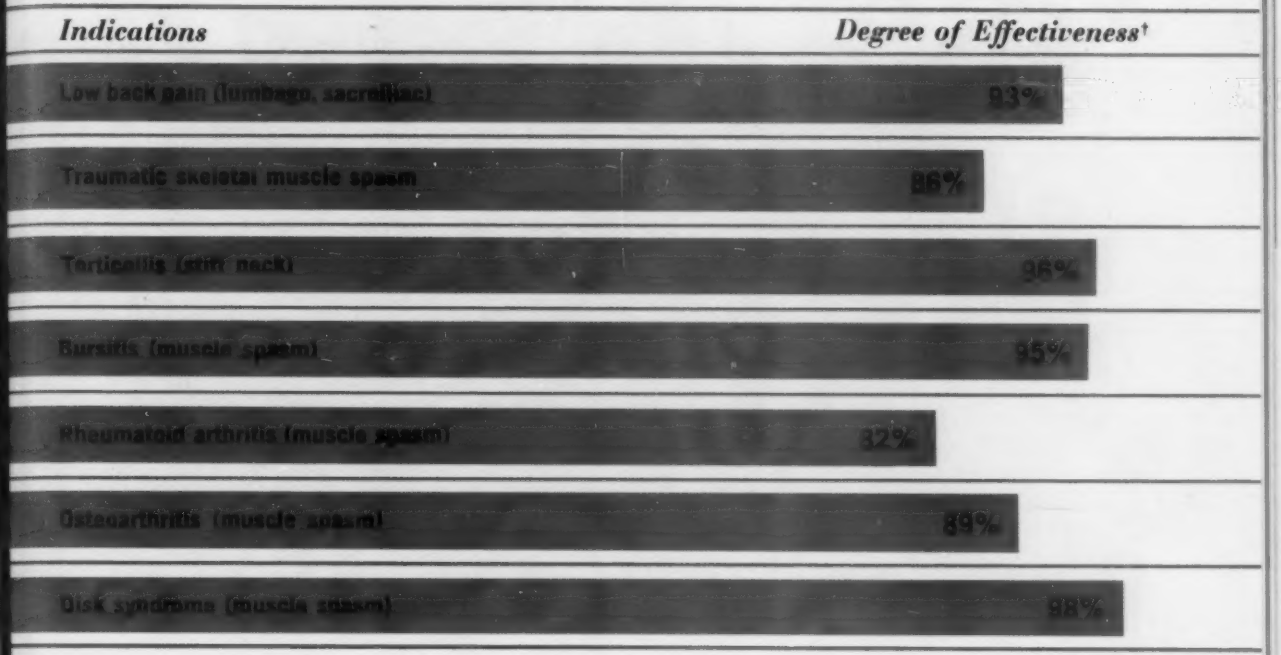

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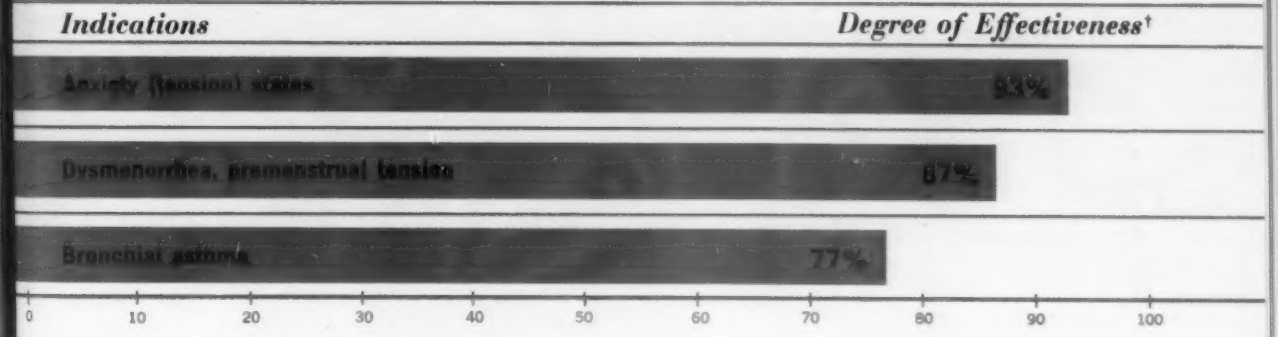

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Osteoarthritis
Disk syndrome
Fibrositis
Joint disorders (ankle sprain, tennis elbow, etc.)
Myositis
Postoperative myalgias

Psychogenic
Anxiety and tension states
Dysmenorrhea
Premenstrual tension
Asthma
Angina pectoris

Neurologic
Muscle spasm (in paralysis agitans, multiple sclerosis, hemiplegia, cerebral palsy)

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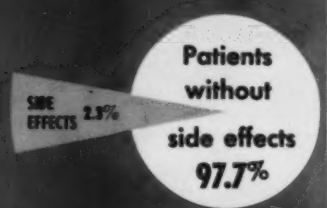
Comparative pharmacologic tests showed that Trancopal is up to thirteen times as safe, or up to thirteen times less toxic. The measure of safety was the LD_{50} in mice/usual human dose.



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REFERENCES

1. Basmajian, A. D.: Drugs to relieve increased tonus, spasticity, and rigidity of muscles, Modern Med. 26:140, April 15, 1958. 2. Lindstrom, A. L.: New developments in muscle relaxant therapy, Southern Assn. Gen. Pract. J. 4:28, Oct., 1958. 3. Mullin, W. G., and Epifano, Leonard: To be published. 4. Lichtman, A. L.: To be published. 5. Comparative Study, Department of Medical Research, Winthrop Laboratories.

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1. Editorial, New England J. Med. 258:48, 1958.
2. Vinnicombe, J.: Antibiotic Med & Clin. Ther. 5:474, 1958.
3. Sheth, U. K., et al.: Ibid., p. 604, 1958.

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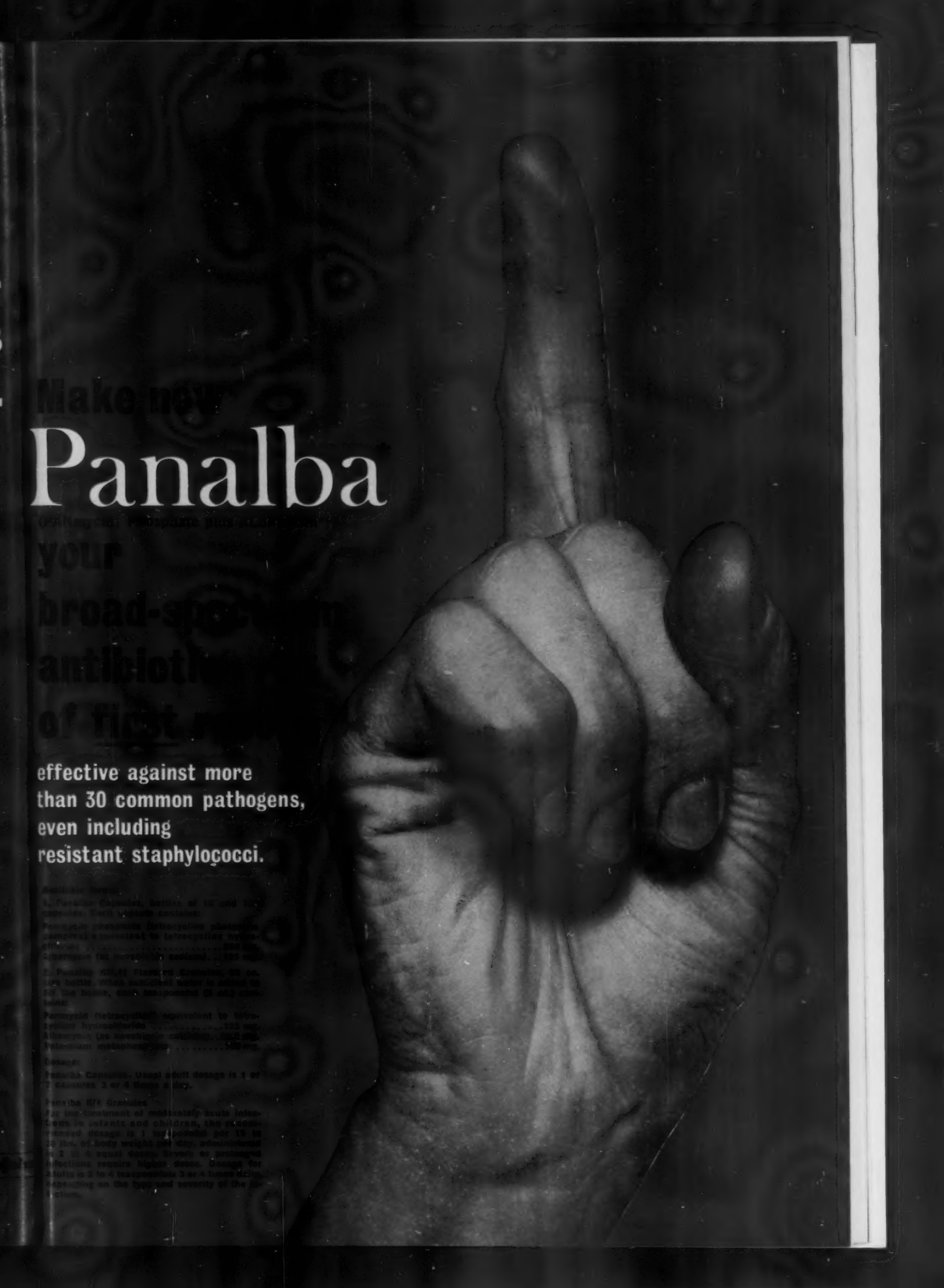
In potentially-serious infections...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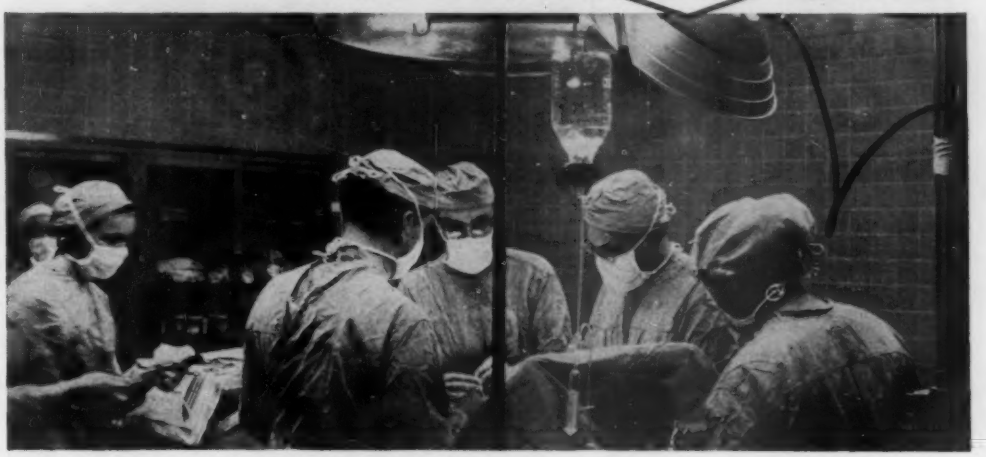

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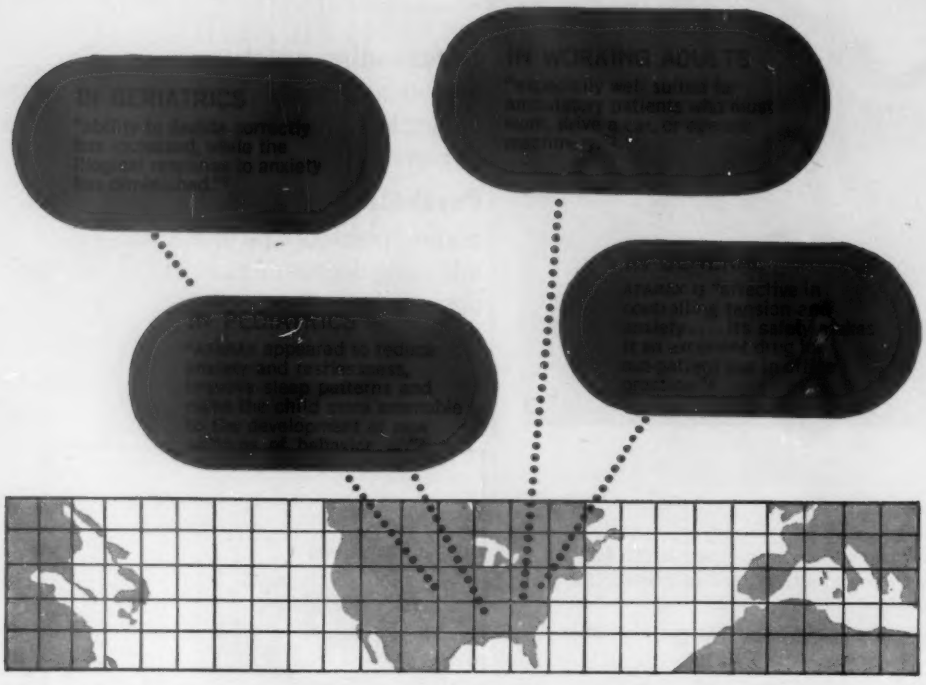

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Supplied: Tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.

References: 1. Smigel, J. O., et al.: J. Am. Ger. Soc., in press. 2. Freedman, A. M.: Pediat. Clin. North America 5:573 (Aug.) 1958. 3. Ayd, F. J., Jr.: New York J. Med. 57:1742 (May 15) 1957. 4. Menger, H. C.: New York J. Med. 58:1684 (May 15) 1958. 5. Coirault, M., et al.: Presse méd. 64:2239 (Dec. 26) 1956. 6. Bayart, J.: Presented at the International Congress of Pediatrics, Copenhagen, Denmark, July 22-27, 1956.

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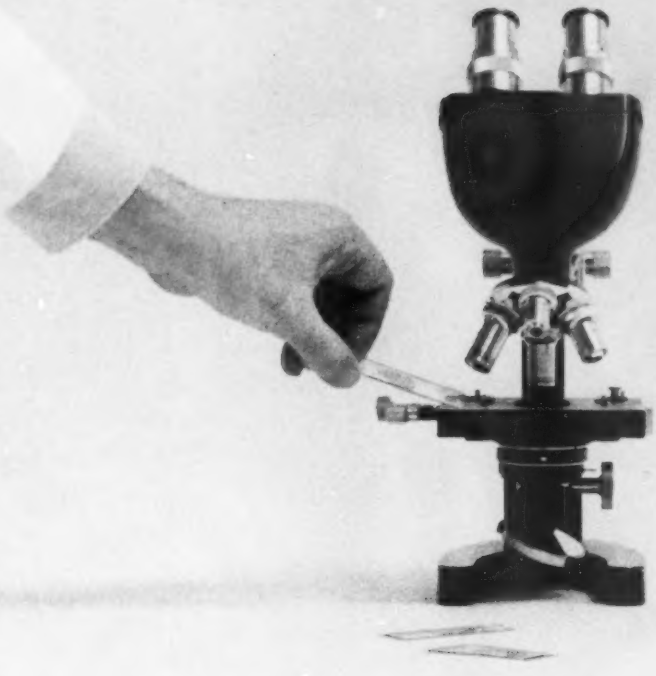

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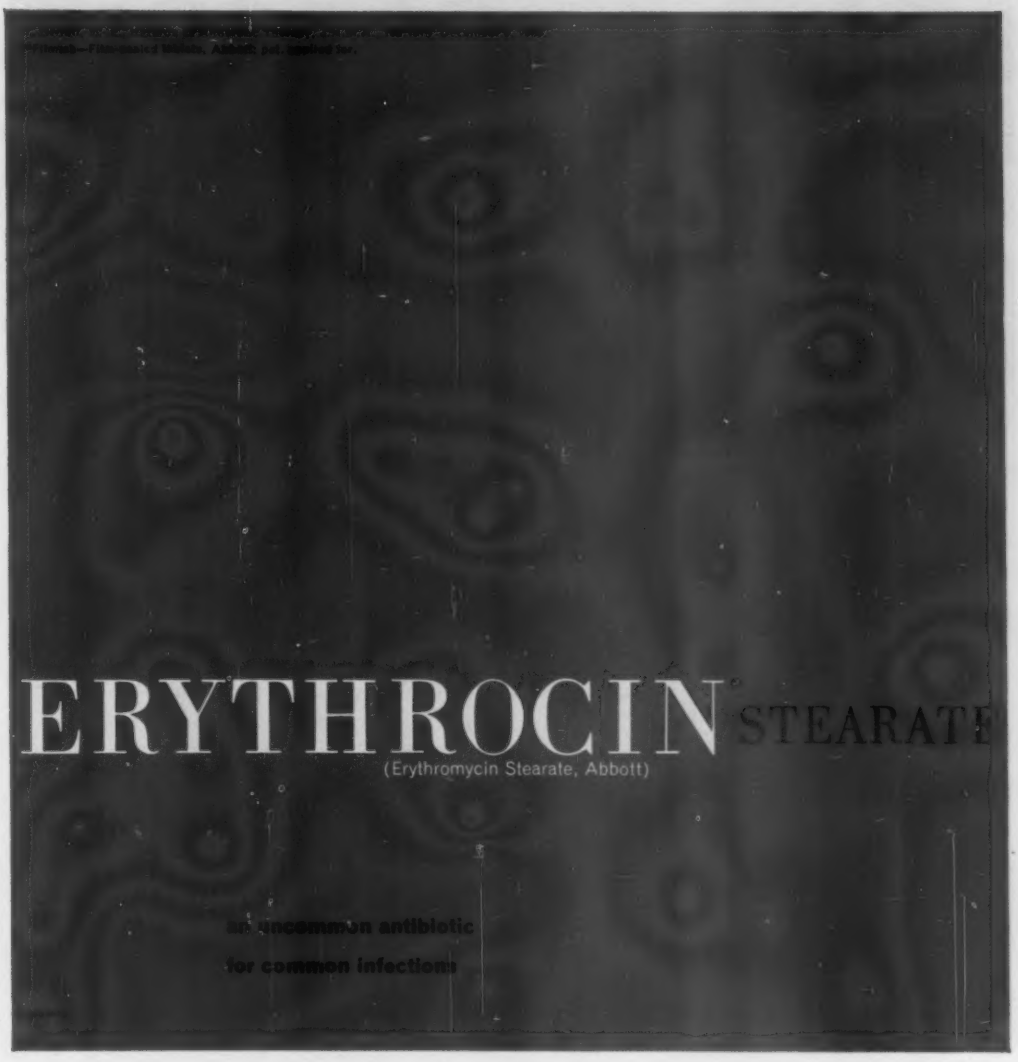
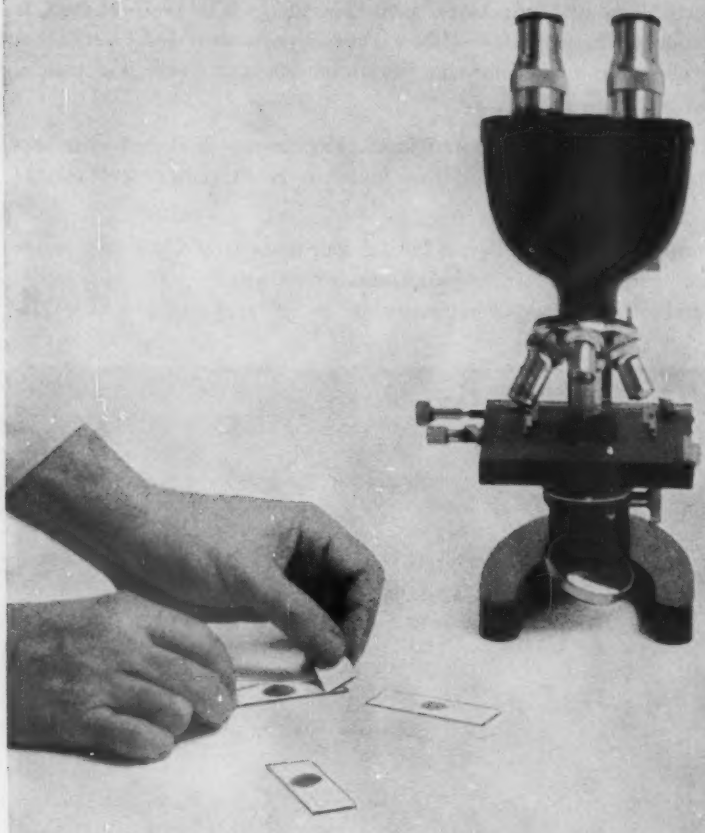


for those penicillin-sensitive organisms



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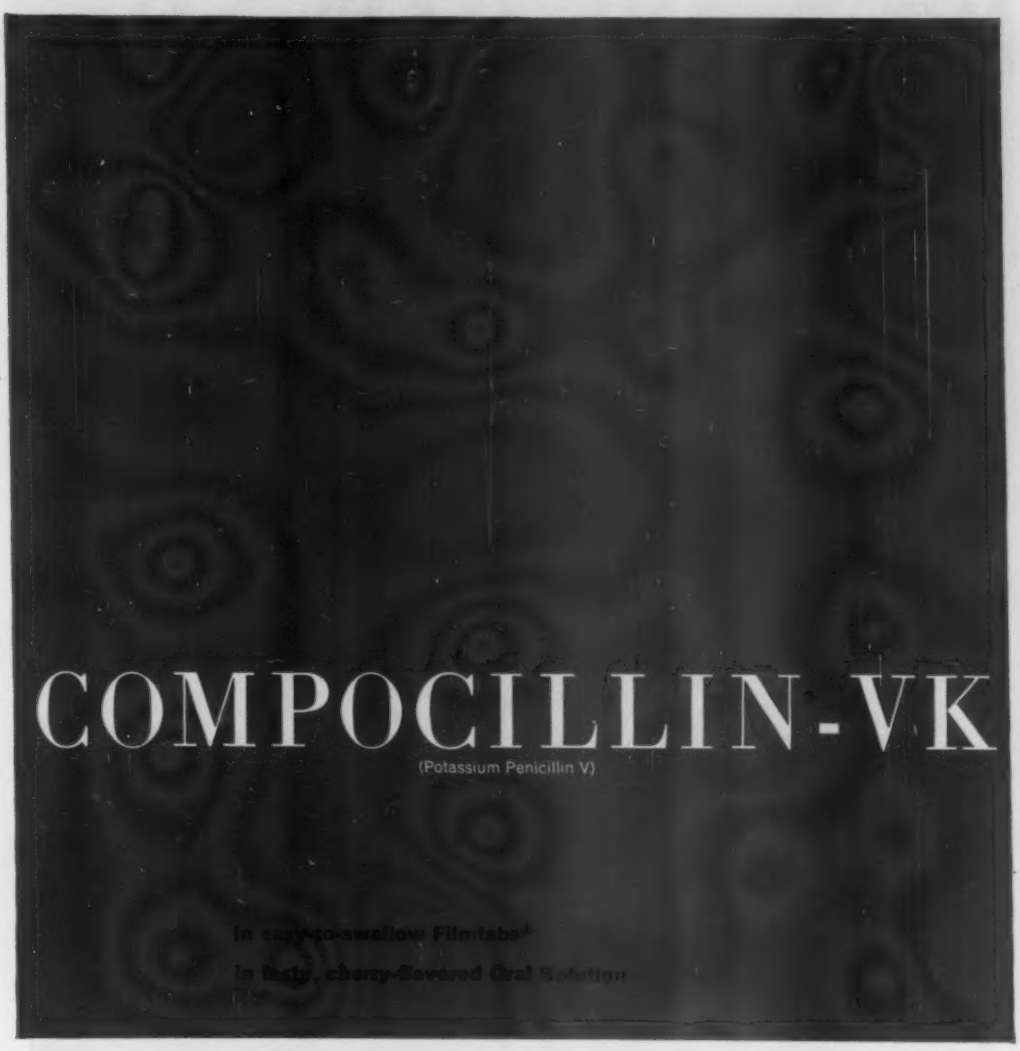
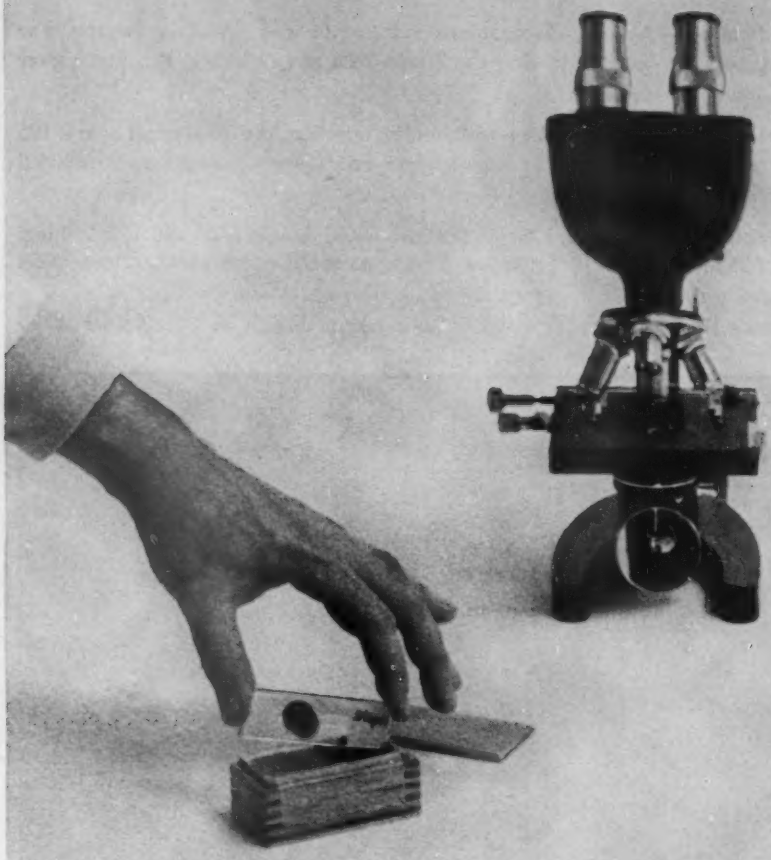


against serious and resistant coccal infections



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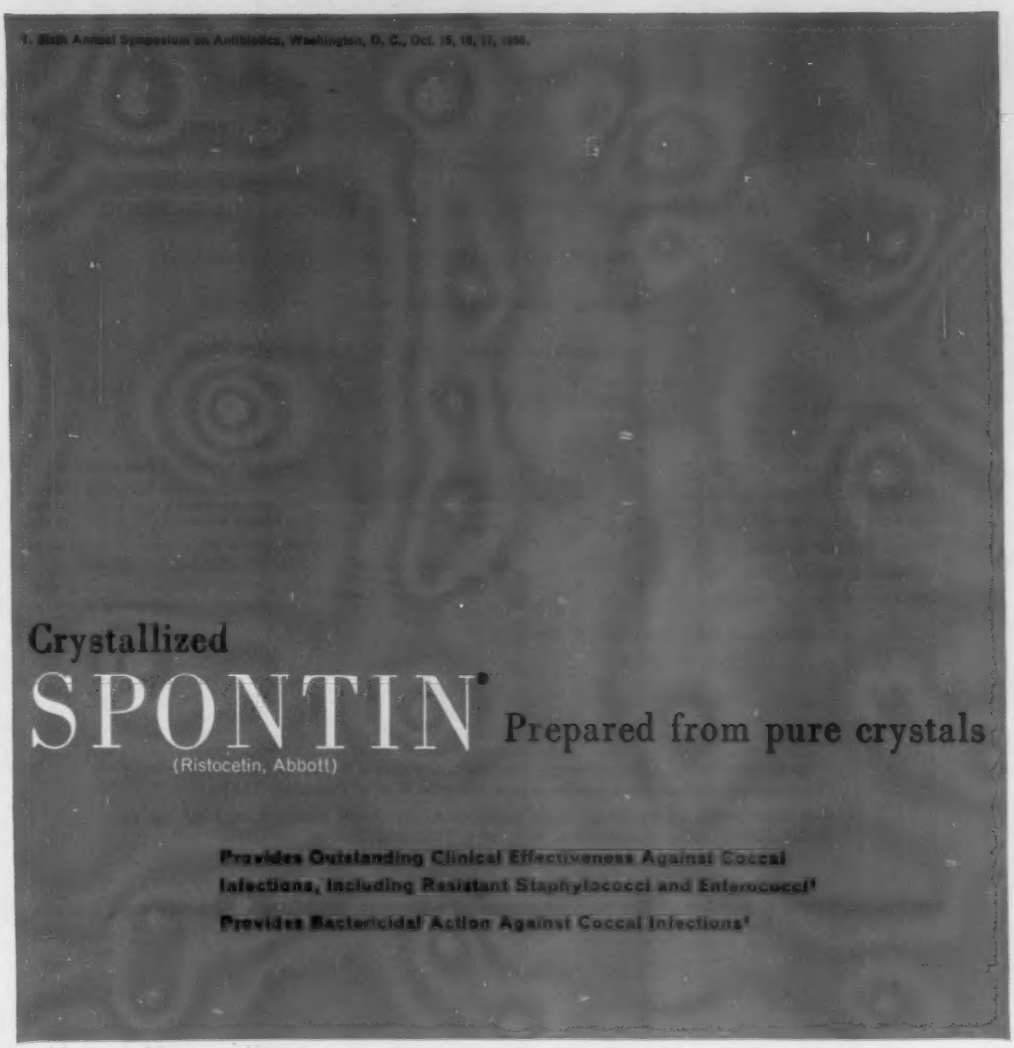
1. Sixth Annual Symposium on Antibiotics, Washington, D. C., Oct. 15, 16, 17, 1956.
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Prepared from pure crystals
Provides Outstanding Clinical Effectiveness Against Coccal Infections, Including Resistant Staphylococci and Enterococci[1]
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running noses and open stuffed noses orally

with TRIAMINIC, the oral nasal decongestant

- in nasal and paranasal congestion
- in sinusitis
- in postnasal drip
- in allergic reactions of the upper respiratory tract

safer and more effective than topical medication

- reaches *all* respiratory membranes systemically
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- presents no problem of rebound congestion
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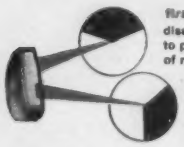
Relief with Triaminic is prompt and prolonged because of this special timed-release action . . . beneficial effect starts in minutes, lasts for hours.


first—the outer layer dissolves within minutes to produce 3 to 4 hours of relief
then—the inner core disintegrates to give 3 to 4 more hours of relief

Each* TRIAMINIC *Tablet provides:

Phenylpropanolamine HCl . . .	50 mg.
Pheniramine maleate	25 mg.
Pyrilamine maleate	25 mg.

One-half of this formula is in the outer layer, the other half is in the core.

Dosage: One tablet in the morning, mid-afternoon and in the evening, if needed.

Triaminic®

Also available: For the occasional patient who requires only half dosage: timed-release TRIAMINIC JUVELETS. Each Juvelet is equivalent to ½ of a Triaminic Tablet.

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VITERRA® PEDIATRIC
each 0.6 cc. contains:
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A (synthetic) 5000 U.S.P. Units 333% 167%
D (Calciferol) 1000 U.S.P. Units 250% 250%
B1 (Thiamine) 1 mg. 400% 133%
B2 (Riboflavin) 1 mg. 167% 110%
B6 (Pyridoxine) 1 mg. †† ††
B12 (Cyanocobalamin) 1 mcg. †† ††
C (Ascorbic Acid) 50 mg. 500% 250%
Niacinamide 10 mg. 200% 133%
Panthenol 2 mg.
in a d-sorbitol base for better vitamin B12 absorption
††Minimum daily requirement has not been established.
DOSAGE: 0.6 cc. or as directed by physician.
In 50 cc. bottles
no refrigeration needed

VITERRA® PEDIATRIC

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ALLOW 30 SECONDS BETWEEN DISPENSINGS

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Problems of over- and under-dosage, spillage, spoilage or leakage disappear with VITERRA PEDIATRIC'S new Metered-Flow bottle. Why not consider these advantages when you recommend a vitamin supplement?

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Science for the world's well-being

NICOZOL w/Reserpine

for the aged patient

. . . when mental decline
is complicated by
marked agitation

NICOZOL w/Reserpine

helps reverse cerebral
deterioration . . . while it
stimulates body function . . .
and calms the emotions.

for a 3-way synergistic action . . .

Each tablet NICOZOL w/Reserpine contains:

Pentylenetetrazol	100 mg.	(cerebral stimulant & analeptic)
Niacin	50 mg.	(vasodilator)
Reserpine	0.25 mg.	(tranquilizer-sedative)

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In studies of 75 patients (average age—72), with typical mental and emotional symptoms together with alternate periods of depression and agitation, 87% showed gratifying response to NICOZOL w/RESERPINE.

"This therapy afforded relief of agitation . . . improved memory, behavior, sociability, appearance and tidiness. Symptoms of confusion, aggressiveness, hostility and disorientation also were relieved." Fewer side effects were noted.

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". . . patients who otherwise would have required institutionalized care were managed at home . . . ."[2]

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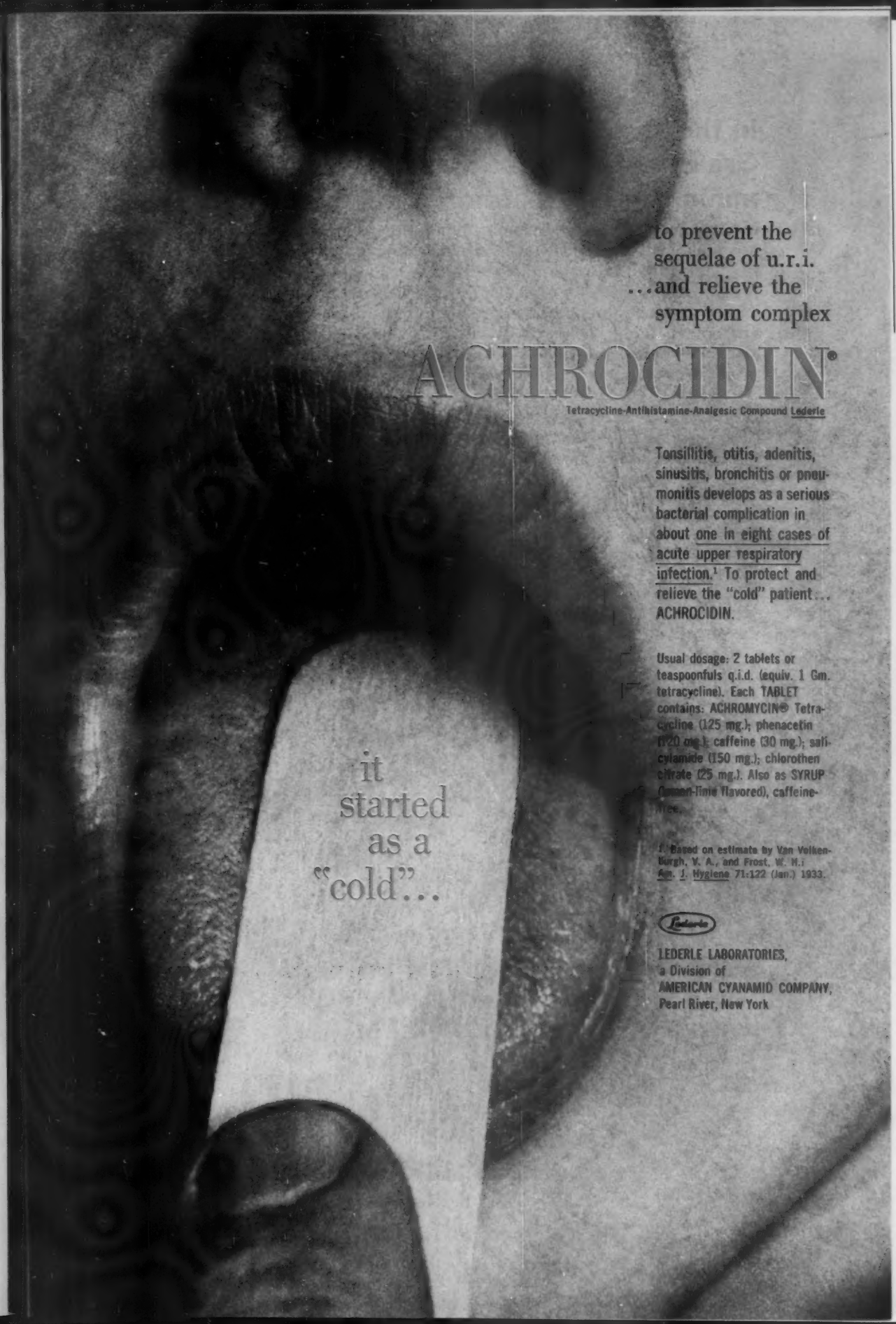
1. Proctor, R. C.: Clin. Med. 6: 717 (June) 1957
2. Proctor, H. ., Bailey, W. H. and Morehouse, W. G.: J. Am. Geriatrics Soc. (April) 1958.



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1. Based on estimate by Van Volkenburgh, V. A., and Frost, W. H.: Am. J. Hygiene 71:122 (Jan.) 1933.

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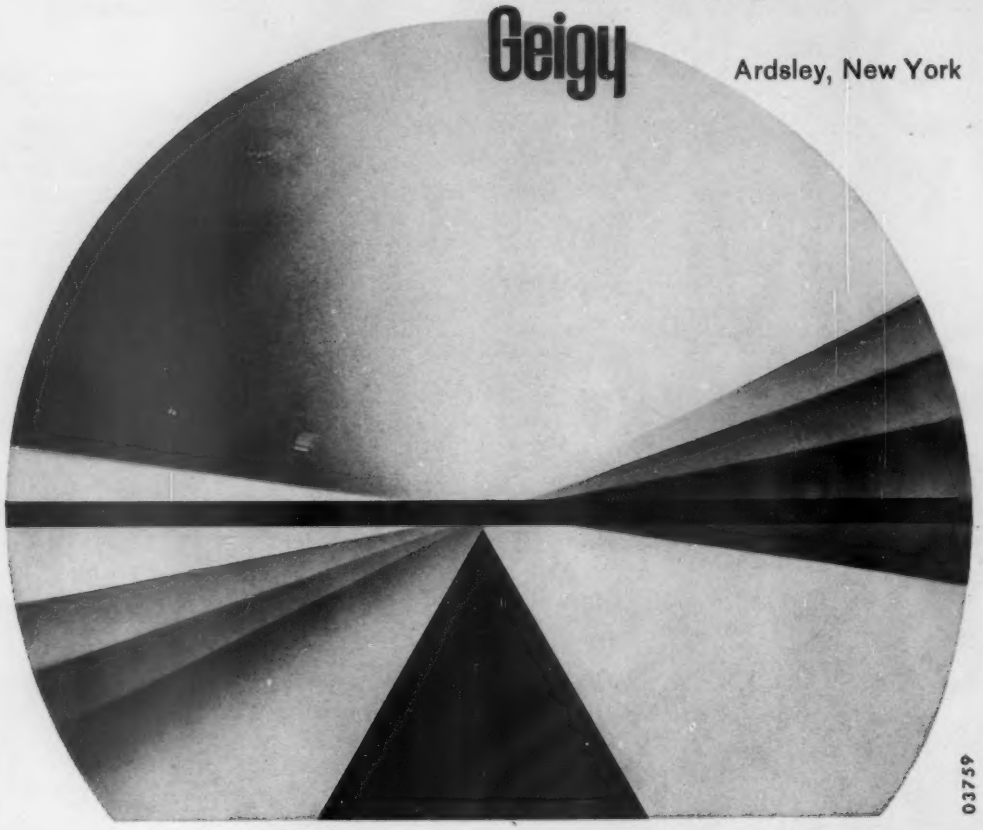

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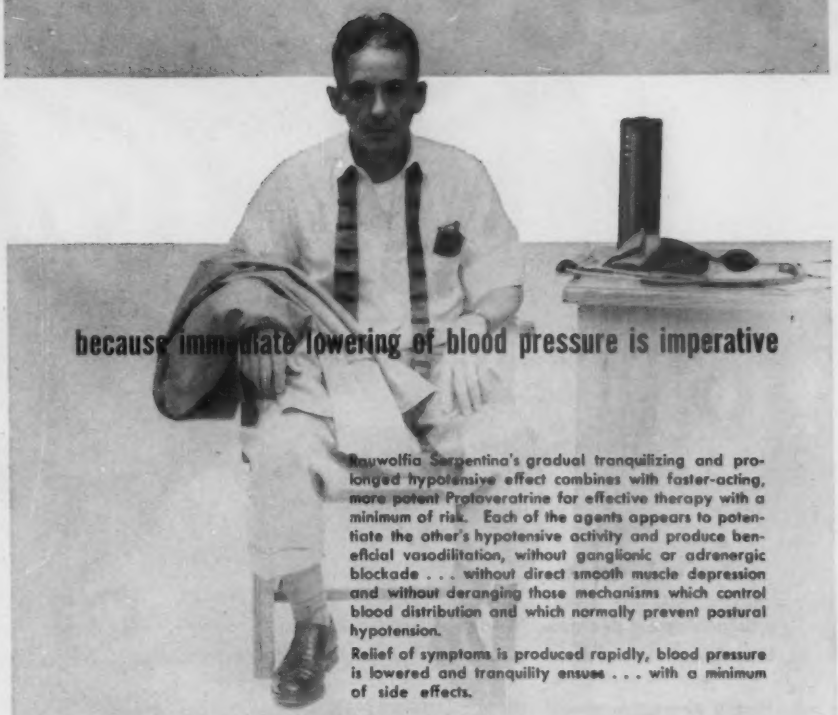

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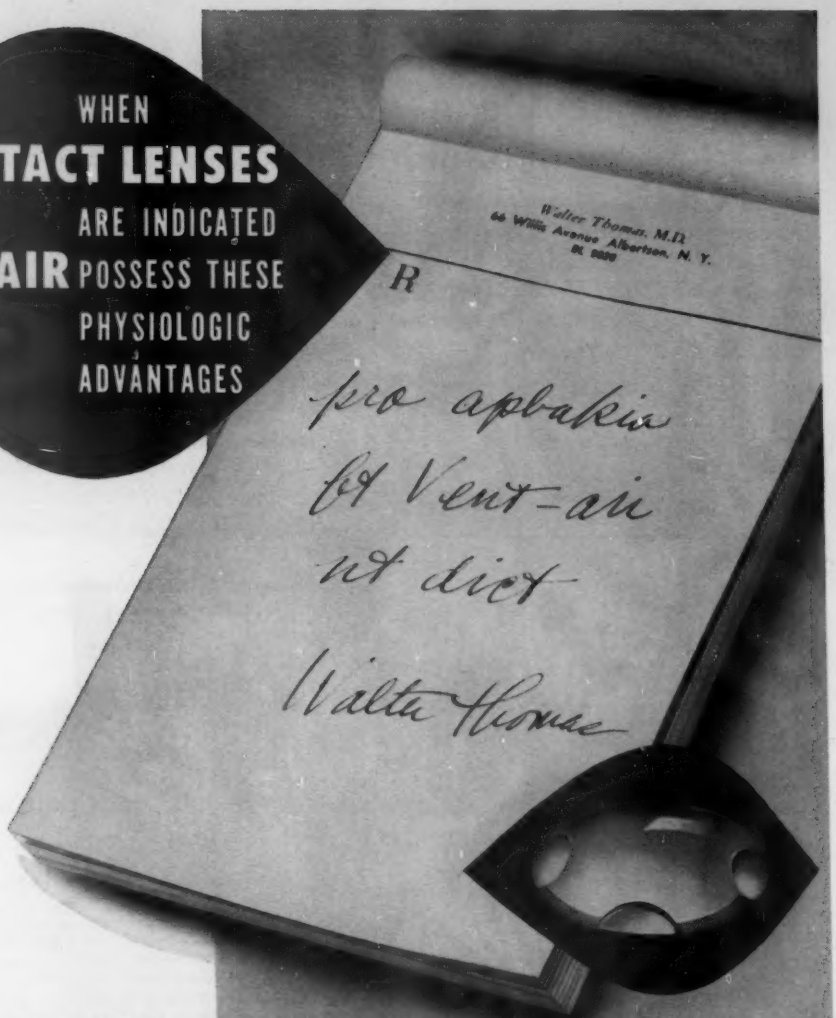

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(1) Rubin, A., and Babbott, D.: J.A.M.A. *168*:498, (Oct. 4) 1958. (2) Kinsey, A. C.; Pomeroy, W. B., and Martin, C. E.: Sexual Behavior in the Human Male, Philadelphia, W. B. Saunders Company, 1948.

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